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OFFENSIVE TECHNIQUES

By MAJ GEN W. K. HARRISON

The essence of offensive combat is to close with the enemy. Although there may be cases when fire alone, such as the atom bomb, may annihilate the enemy on the defensive, the general case is that the defender can dig himself in so that he has a high degree of security against fire alone. Furthermore, the expenditure of ammunition with the idea that it will ultimately destroy the enemy is too costly and time-consuming to be an acceptable method.

Infantry must close with the enemy in order to destroy him. The psychological effect of such attack is to require the enemy to make an early decision whether to stay and fight it out or to withdraw while he still has the opportunity. He has to make that decision earlier if some element of the attacking forces is directed toward his rear, thereby threatening his withdrawal. Furthermore, such withdrawals are more difficult to make.

The American concept of the employment of Infantry is diametrically opposed to that of the employment in mass waves as practiced by the Communists. Every effort must be made in the use of supporting arms and in the use of terrain in order to enable the Infantryman to advance with a minimum of casualties.

The techniques required of American Infantry include the greatest possible use of support fire from air, artillery, and Infantry weapons, as well as skillful and subtle operations of the advancing foot troops.

Superior and accurate fire forces the enemy to take cover, thereby rendering his fire less effective. Attacking Infantry, then, can advance with relatively light losses. The offensive fire must be directed not only at the objective, but at enemy weapons of all kinds that are in position to strike the attacking Infantry. (See Figure 1.)

Obtaining such fires requires great skill, for advancing riflemen exposed to hostile fire find it difficult to fire their weapons effectively. Further difficulty in attaining fire superiority arises from the fact that so much ammunition is required for the necessarily great volume of fire that it cannot be maintained over prolonged periods, or over wide areas. The amount of ammunition available, of course, varies and the volume and area of fire vary accordingly. To maintain offensive fire in the face of enemy fire and to attain superiority during critical periods of the advance requires courage and the skill that comes of training and experience.

Fire support and Infantry operate together. The advance of the Infantry forces the enemy to the surface where he can use his weap-

on; support fire forces him below the surface for his own safety. It is the combination of rapid determined advance by the Infantry and powerful fire support on the enemy objective during this advance that

missible because if the hostile defenders have lacked courage to come up and shoot, the chances are that they will be ready to surrender, or will seek to escape.

An enemy on the defensive is

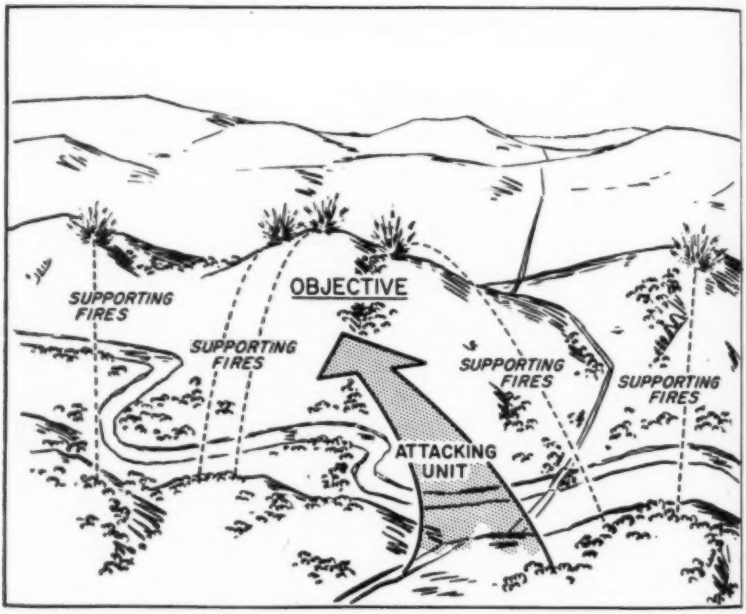

Figure 1. Superior and accurate fire forces the enemy to take cover. Offensive fire must be directed not only at the objective, but at enemy weapons that are in position to strike the advancing Infantry.

give the greatest chance of success.

The number of Infantrymen involved in the attack of a given objective must be enough to defeat, hand to hand, the enemy on the position and to hold the captured position against an immediate enemy counter-attack. It is quite probable that in the general case an actual numerical inferiority in the assault echelon will be per-

usually organized in depth with mutually supporting groups. Each group will probably be located on a piece of terrain that facilitates coordination of the fire from that position with the fire of other defensive groups. Such terrain usually offers the advantages of observation, concealment, and cover.

An attack, therefore, requires the capture of a succession of these

objectives until the attacking force has reached the point where the enemy is either surrounded or captured, or he has had to make an earlier decision to get out.

reorganize and prepare to defend itself.

To continue the attack, the commander must make last minute plans such as coordinating his sup-

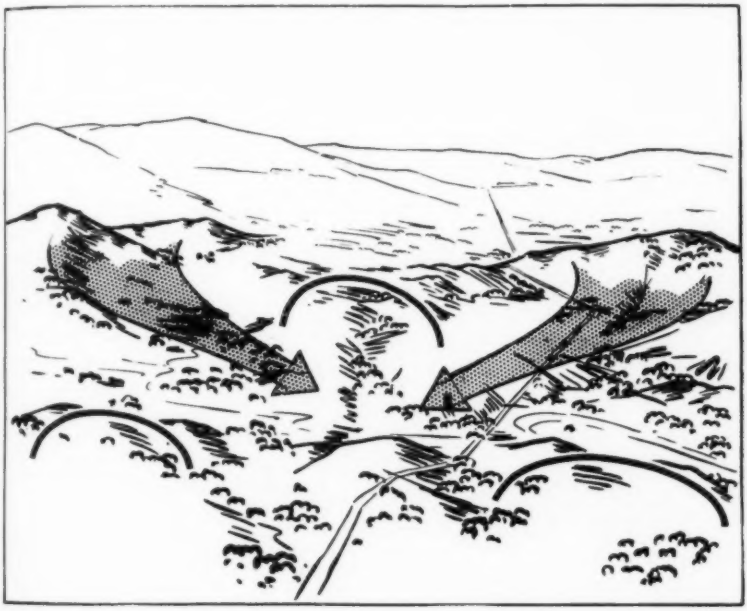

Figure 2. Infantry units in the attack rarely maintain positions abreast of each other. The resulting uneven front affords opportunity for enemy flanking action.

Infantry attacking an objective usually suffers some losses, is considerably disorganized, and temporarily fatigued. But, when the objective is taken, it must be prepared for defense against an immediate counter-attack and a heavy concentration of hostile artillery or mortar fire. It is apparent that an Infantry unit which has just captured an objective has not completed its job; it must immediately

porting fire, issuing his orders, and regrouping to advance on the next objective. From this it can be seen that against a determined enemy an attack is not simply a great wave advancing without intermission, but is a succession of violent impulses separated by intervals for reorganization and preparation.

Infantry units in the attack rarely maintain positions abreast of one

another. The main attack, if effective, moves more rapidly than others. Enemy resistance, terrain obstacles, and errors slow up some units. The resulting uneven front affords opportunity for enemy flanking action. (See Figure 2.) When in advance of units on its flanks, an Infantry force deployed and launched against an objective is highly vulnerable to attack against its flank because its weapons are not deployed to fire in that direction and to redeploy them is exceedingly difficult. Furthermore, to do so would probably prevent the attack against the given objective from succeeding. Therefore, troops other than those actually involved in the assault and reorganization on the objective must provide security against flank counterattacks. Such security troops should be actually deployed and ready to fight on positions that give security to the assault unit. If this is not done, an enemy counterattack may temporarily, or permanently, paralyze the attack and defeat the entire operation.

Troops actually attacking an objective should not be required to look out for the flanks but should move with all speed towards the objective.

It takes considerable time to organize any defense; therefore, as a counterattack is a reasonable possibility, the preparations to repel it must be made before the attack if they're going to be successful.

This same principle is seen in the exploitation of a breakthrough by armored forces. The armored forces head straight to the objective and other forces protect their flanks and rear. This was an element of the German plan in the Battle of the Bulge but they lacked forces to execute it properly.

If the attacking forces are to secure a definite decision over the enemy or prevent his withdrawal and destroy him, the successive impulses of the attack must be pushed forward to the decisive point with the greatest speed. By this speed, the time for enemy reaction is reduced and he becomes relatively immobile. The speed of the attack from its initial launching to its ultimate objective cannot be overemphasized.

One of the principal elements of success is surprise in the time or direction of the attack, preferably in both. If the enemy knows when and where he will be hit, he can anticipate the attack by heavy fire just before it jumps off probably causing its failure. If the hour or direction of the attack are unknown to him, our assault units can often get beyond the planned defensive artillery and mortar fires before the enemy's reaction time permits him to strike. This is particularly true if earlier points have disclosed the location of these planned concentrations.

To sum up, we find the attack to the ultimate objective made by successive impulses from one objective to the next requiring: a heavy volume of accurate fire support while the Infantry is exposed, surprise, maximum speed throughout, the need for reorganization and regrouping on each objective, the use of a minimum of Infantry in each actual attack, and the necessity for deployed and organized defense to protect the flanks of the assault units.

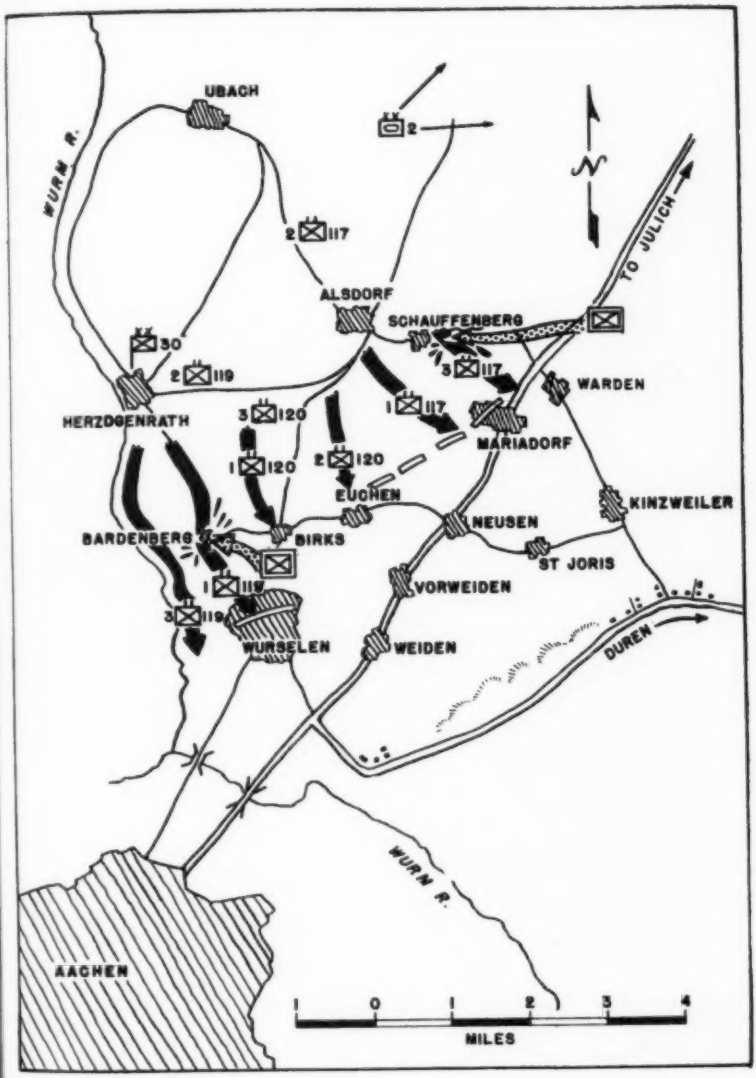

Figure 3. Operations sketch.

An illustration of the failure to follow the procedures summarized in the preceding paragraph is seen in the difficulty experienced by the 30th Infantry Division about 9-10 October, 1944. The situation is shown in Figure 3. The 30th Division, on 2 October, broke through the Siegfried Line about eight miles north of Aachen, in the vicinity of Ubach. It was then turned south and southeast in order to link up with the 1st Division, which was east and south of Aachen, and to cut the German supply road from Aachen to Duren. The 2d Armored Division passed through Ubach to operate to the east and northeast and protect the rear of the 30th Division.

On about the 9th of October, the situation was about as shown on Figure 3. The 119th Infantry on the right was advancing via Bardenberg on Wurselen; the 3d Battalion on the regimental right was cleaning out pillboxes of the Siegfried Line. The 1st Battalion on the left was operating along the road Herzogenrath - Bardenberg - Wurselen; the battalions were approximately abreast. The 2d Battalion was in division reserve generally as shown. The 120th Infantry was advancing, as shown, in the general direction of Birks and Euchen. The 117th on the left flank was advancing via Alsdorf toward the built-up area along the Aachen-Julich road; its 1st and 3d Battalions were approximately abreast, with the 2d Battalion trailing in reserve.

The division had suffered a number of counterattacks by relatively weak forces, and it was known that additional German forces were probably coming up to stop the advance.

The 1st Battalion, 119th, took Bardenberg against only light resistance and continued on toward Wurselen. The 3d Battalion was keeping up on the right. The 1st Battalion left one company in Bardenberg to set up road blocks, but apparently this company did not dig in, nor did it place antitank mines.

The 120th did not take Birks in the afternoon of 9 October (as had been hoped) and had to take it before daylight the following morning by surprise. The road Birks to Bardenberg was, therefore, open to the Germans during the evening of the 9th.

About dusk on 9 October some troops of the 120th came via Bardenberg to attack Birks from the west. As they moved up the road they suddenly met a German counterattacking force consisting of tanks, self-propelled antiaircraft guns, and Infantry. Since the company left in Bardenberg by the 119th was not properly organized for defense, the Germans got into the town. During the night, the division reserve battalion (from the 11)th Infantry) was sent in to dislodge the Germans, who were in considerable force. Naturally, an attack of such nature, without any opportunity for daylight reconnaissance or planning, was doomed to disorganization and stagnation. Finally, on the following day the 3d Battalion, 120th Infantry regimental reserve, dislodged the Germans.

In the meantime, the 1st and 3d Battalions of the 119th were virtually cut off and could receive only limited supplies and conduct limited evacuation by a trail in the

general vicinity of the Wurm River. Their advance was completely paralyzed. By the time the situation was cleared up and they were ready to go again the Germans had occupied Wurselen in strength, and in spite of the division's best efforts, they could not be dislodged until the Roer offensive started more than a month later on 16 November, at which time the enemy had to evacuate Wurselen to keep from being cut off. The contact planned with the 1st Division was not made for several days and then in the most tenuous fashion by skirting around to the west of Wurselen with patrols.

On the same afternoon that the 119th suffered its reverse (9 October) the 117th's attacking battalions captured Alsdorf, which was a fair-sized town, and continued the attack as indicated on the sketch. (Figure 3.) While the battalions were about as shown, a strong German counterattack struck the left flank. The 3d Battalion CP, which was in the southeast corner of the built-up area of Alsdorf in a small section known as Schauffenberg, had to fight for its life. Late in the afternoon, German tanks and Infantry were in one street and elements of the 117th were in the next. The 2d Battalion had to be brought up, and after considerable fighting dislodged the Germans.

In the meantime, the attacking battalions were paralyzed and fell back into defensive positions on the south side of Alsdorf, giving the Germans time to occupy and defend the strong built-up area along the Aachen-Julich road. As a result of these counterattacks (about the 9th of October) the Germans were able to use the Julich and Duren roads as far as Wurselen in a large salient which later had to be reduced at the beginning of the Roer offensive. It is probable that if these counterattacks had been beaten off when they were made, the division might have secured the area up to the Aachen-Duren road and have eliminated the need for the reduction of the salient (which consumed about four days) at the beginning of the Roer offensive.

As a result of these actions, the units were instructed that henceforth in this type of operation they should attack from defended bases. This meant that in this particular situation, both Bardenberg and the eastern part of Alsdorf (Schauffenberg) should have been occupied for defense with weapons in position and dug in and mines placed on the roads before the attacking battalions jumped off for the next objective. This method was practiced in subsequent operations with great success, the division moving rapidly with light losses, taking many prisoners and suffering no successful counterattacks. The 9th Army and XIX Corps considered the 30th Division's later operation in the reduction of the salient and advance to the Roer in November as a model.

The method for applying the procedures involves several factors. Firepower is the first problem to be solved. We win by shooting. We fire not only the weapons of attack elements but all supporting weapons because their fire reduces the effectiveness of the enemy's fire during that most critical period when the Infantry and tanks are exposed in movement and less able to use their own weapons. Probably the most effective fire is a high concen-

tration for a short period; during such concentration the Infantry can move at a fast walk if there are no very difficult terrain obstacles. In the ordinary case, unless the Infantry is in a flat plain, it can easily get up to within a few hundred yards of the enemy position before the final jump off against the objective. If it is not protected by this intense, but brief fire, it is very likely to hit the dirt unnecessarily and the attack, if it is ever successful, will take a long time. Fire support is given not only by artillery, mortars, and machine guns, but by all available Infantry weapons, because the overhead fire must lift as the assault troops approach the objective.

The Infantry support fire should be as nearly as possible at a right angle to the direction of movement of the assault units. This combination of directions has an added advantage in that it forces the enemy to try to fight in two different directions at the same time. During the short period of time involved, it is very difficult for him to determine where the attack is going to come from until he actually sees the troops move.

The first thing to remember, therefore, is that instead of dispersing our fire support on a number of objectives at the same time, we attempt to concentrate it intensely on one, or a very few, at any one time. Those objectives that are attacked should, when occupied, facilitate further fire on the next objective, as described above. For example, if two defended localities are to be taken it is better to take one of them and then use it for a fire support position, or line of departure, in taking the second, unless we have enough ammunition, tanks, and other supporting weapons, to overwhelm both at the same time.

In connection with the matter of intensifying the fires briefly on a single objective, we should plan the actual forward movement of the assault unit over terrain having no serious obstacles and affording facilities for communications, concealment, and cover.

Having been given a mission, the commander should analyze his situation with a view to determining the different objectives, their mutual relationship, and their successive order. He should then plan his maneuver against each one so that he not only takes it quickly, but is then in good position to continue the attack immediately to the next objective. It is customary to draw unit boundaries extending well to the front, with the idea that subordinate units will cooperate and coordinate their attacks. It probably would be much better to have the plan for the attack of each of the successive objectives an integrated affair in itself with boundaries extending forward only short distances and being changed from objective to objective. Of course, the larger the units involved the greater will be the areas involved as objectives and therefore the farther forward the boundaries may extend.

Once the scheme of maneuver has been determined, speed is gained by decentralization and coordination of planning and the execution of such plans. It facilitates both planning and execution if the unit to make the attack on each of the successive objectives is fresh, because the commander of that

unit, having studied the air maps and photographs, the ground maps, and having made such personal reconnaissance as may be possible, is able to prepare a good plan in advance of the attack. This plan, of course, will be subject to last minute revision, as any plan always is. To keep a groggy enemy off balance, this fresh unit should be ready to continue the attack with minimum delay. The commander of this unit and his staff follow the assaulting unit closely, if their attack is to be launched from the objective. Their quick entrance on the scene facilitates the speedy completion or adjustment of plans already made.

This method has certain advantages: No one headquarters has to make too many plans in a given period of time; the troops making the attack are relatively fresh, and can be moving into position for their own attack while the units that have taken the preceding objective are digging in and reorganizing. (Individuals in attacking units rapidly lose physical condition and aggressiveness if they are pushed too far and fast and have no time to recuperate.)

With proper planning it is not too difficult to execute such plans. There must be some traffic control, but this can be handled without too much difficulty if everybody understands what is going on. In the 30th Division's attack to the Roer River, plans to take successive defended towns and villages were made by particular battalions sometimes as much as three to four days ahead. Successive captured objectives that organize for defense not only can withstand counterattacks, but serve as defended bases that protect the flank and rear of the units attacking the next objective.

For example, if, in the 117th Infantry attack on the 9th of October, the 3d Battalion, which took the eastern part of Alsdorf and then advanced to the south, had instead immediately organized Alsdorf for defense, the 2d Battalion could have leapfrogged with relative ease and continued the attack quicker than the 3d Battalion actually did, and, at the same time, its flank and rear would have been securely protected.

More than a month later, when the 117th jumped off from Alsdorf on the 16th of November, Alsdorf was organized for defense by the regimental reserve battalion. (See Figure 3.) When the village of Mariadorf was taken, it was immediately organized by the assaulting battalion and the regimental reserve battalion leapfrogged to the next objective according to a prearranged plan. In this case, the left flank of the division was the 117th Infantry; on its left were Germans; the 29th Division was directly to the rear, attacking to the east. By advancing south, the 117th continued to increase the need of flank protection. For this reason, a battalion from another division was sent in to occupy Alsdorf. Other regiments of the division used the same method in subsequent operations.

To illustrate intense Infantry fire support for brief periods, the 30th Division's attack on St. Joris and Kinzweiler is cited. (See Figure 4.) The 117th was to attack southeast from Mariadorf and Warden to St. Joris and Kinzweiler.

In addition to intense artillery

and mortar fire, the 120th built up terrific supporting fires by placing its heavy weapons plus tanks and antitank guns in the vicinity of Vorweiden and Neusen to support the 2d Battalion, 117th Infantry as it advanced on St. Joris.

The 117th loaded the second stories of buildings in Mariadorf with machine gunners and riflemen

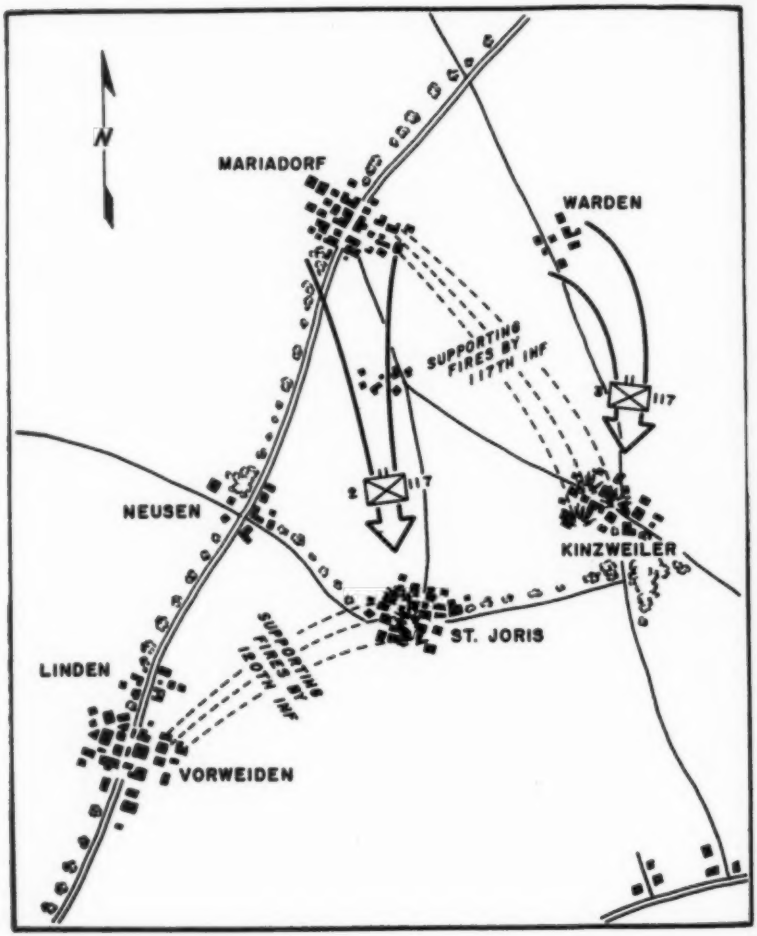

Figure 4. Infantry fire support during attack on St. Joris and Kinzweiler.

in support of attack of the 3d Battalion, 117th Infantry against Kinzweiler. The attacking battalions jumped off at the same time and in not more than 45 minutes took both towns with very few casualties. Here was a case of success resulting from intense fire plus speed. The booty included 223 prisoners (including two battalion commanders), numerous enemy dead, three self-propelled guns, four 75-mm AT guns, four halftracks and large stores of ammunition. This attack was the culmination of a four-day attack in which the 30th Division, using the methods described and at a cost of 60 dead and 474 wounded, wrecked the 3d Panzer Grenadier Division and a regiment of the 246th Division, taking about 1,600 prisoners and considerable material.

The tactical principles used in the examples cited can be applied regardless of the size of a unit. They were actually used with battalions and companies. They can be used with armies and army groups. The principles involved include:

1. Decisive superiority at the successive points of attack.
2. Maximum speed in the attack to the final objective.
3. Adequate security of the flank and rear of the attack.
4. Surprise in hour of attack and direction.

This article relates the application of these principles to an attack against an enemy defending in depth with mutually supporting strong points and mobile reserves. If there is a breakthrough, speed is subsequently increased by reduced need of: maximum coordinated firepower, carefully prepared plans, and flank security. If enemy strong points are separated by wide intervals they can be by-passed by infiltration and surrounded.

The techniques used in applying these principles include:

1. Intense fire power for brief periods combined with rapid infantry-tank advance against a single objective.
2. The objective chosen in such a way that its occupation facilitates the attack on the next objective, which is launched as speedily as possible.
3. The use of a new, fresh unit for each of the successive attacks.
4. The immediate organization of a captured objective in order to stop counterattacks and to furnish fire support to the next attack, and to protect the flank and rear of that attack.

There is nothing startlingly new about these techniques. They are simply variations on a theme familiar to successful commanders for centuries. These are embellishments but you can still recognize the old tune: Superiority, Speed, Security, Surprise.

A RIFLE PLATOON WITHDRAWS AT NIGHT

By LT COL LEONARD M. McNUTT, Infantry

Lieutenant Jones hunched forward in the two-man foxhole OP he occupied with his platoon messenger. He edged up cautiously to get a better look at the grove of trees to his front. The trees offered the enemy a covered approach, and a covered approach was usually good for an enemy patrol or even an all-out attack.

The lieutenant showed the strain of battle. He had been a busy man for several hours, organizing his position.

His defensive dispositions looked good to Lieutenant Jones. His weapons squad's light machine gun was on his left in the 3d squad area. On his right flank, in the 1st squad area, there was a light machine gun from the heavy weapons company. (See Figure 1.) The other LMG of this section was in position near the ruins in the adjacent platoon area.

Between the 2d squad, which occupied the middle of the platoon position, and the 3d squad, on the left, the weapons platoon had emplaced a 57-mm rifle. In a cut directly behind the platoon position was a 60-mm mortar squad. Also the heavy weapons company had set up an 81-mm mortar OP in his platoon area. (See Figure 1.)

Daley, his messenger, slid a little deeper into the hole as an incoming mortar round burst nearby. "I'd rather be any place but here," he muttered.

Lieutenant Jones rose cautiously after the shell blast: "Better learn to love it," he said. "We may be here a long time."

"I may get used to it, but I'll never love it."

Lieutenant Jones shifted back into position to continue his observation to the front when his attention was again distracted.

"Hey, Jonesy!" It was the voice of Lieutenant Short, the company executive officer. Lieutenant Jones turned and saw him peering over the rim of the draw behind the OP. Lieutenant Short motioned Jones to join him. Glancing at Daley, Jones said, "Keep your eyes to the front and your ear glued to that radio!" He crawled out of his foxhole and dashed down a sunken trail to the draw.

When Jones joined him, Short said, "We're pulling back tonight."

Both officers automatically pulled out their maps. Lieutenant Short first pointed out the 1st platoon's present position, and then indicated the new defensive position to the rear. "Here's where the new line will be."

Lieutenant Jones noted this information on his map, took out his notebook and started writing.

Lieutenant Short continued, "Lieutenant Smith, the weapons

platoon leader, is joining the battalion S3 to reconnoiter the new position in the rear. He'll select new positions for the weapons and rifle platoons. Have one of your NCO's report to him immediately at the company CP to go on this reconnaissance. The NCO you send will select squad positions for your platoon, a new CP-OP, and will pick a route from the company release point to the new platoon position area.

Lieutenant Jones nodded, then called to Daley, "Go get Sergeant Mace," (the assistant platoon sergeant). Daley nodded and moved off towards the 1st squad.

Lieutenant Short continued as Jones turned back to him, "The exact time of the withdrawal has not been decided yet, but it'll start shortly after dark. I'll give it to you as soon as it's known. They are moving the supply points back now and they will evacuate all casualties before dark. All roads will be clear by the time your withdrawal starts. Your platoon assembly area for the withdrawal is just about where we are right now."

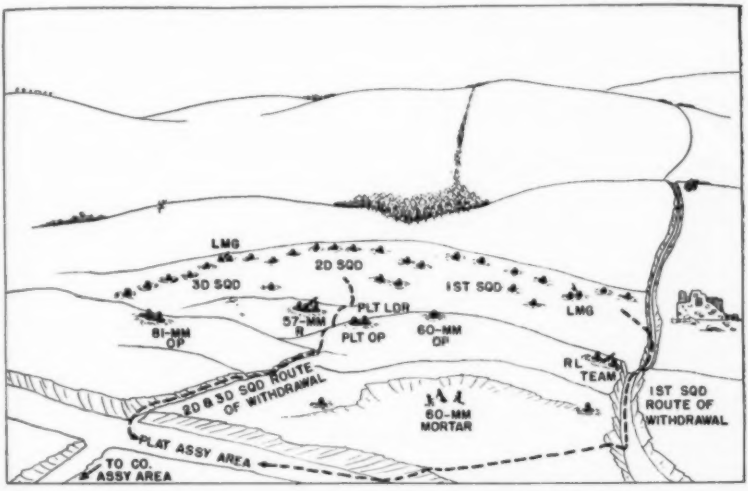

Figure 1. Platoon dispositions and routes of withdrawal.

Lieutenant Short pointed it out on his map. "Move out over this route to the company assembly area, which is in this open field about 300 yards from the company CP. After your platoon arrives at that field you'll move under company control. Are you still with me?"

"Haven't missed a thing."

"I'll command the covering force*," Lieutenant Short con-

*Covering force — That portion of a unit left in place to protect the withdrawal of the main body. It, in turn, withdraws on order, or at a prearranged time.

tinued. "I'll use the present company CP as my headquarters and the present wire lines to control the covering force. We'll need one of your rifle squads, your light machine gun and a rocket launcher from your platoon to remain here with the covering force. They will be supported by that heavy weapons company LMG and the 60-mm mortar with skeleton crews. You can use your radio as usual, but don't mention the withdrawal and don't use the phone in connection with this operation either."

They were interrupted by the arrival of Daley and Sergeant Mace. Lieutenant Jones said to Daley, "OK, now tell the platoon sergeant and the second squad leader to report over here in five minutes. You can stay at the OP."

Turning to Sergeant Mace, Jones said, "Report to the weapons platoon leader, Lieutenant Smith, at the company CP. We're pulling back tonight. Lieutenant Smith is going back to reconnoiter for the company position in the new rear area. You go with him and select squad positions for our platoon; pick out a CP-OP; and find a route from the company release point to the new platoon position area. Show our guides the positions when they get back there. Any questions?"

"No, sir," answered Sergeant Mace, and he started off to the rear.

Lieutenant Short completed the warning order and added, as he departed, "I'll keep you informed of any changes."

To take advantage of the remaining daylight hours, Lieutenant Jones at once began preparing for his platoon's withdrawal. He studied the terrain and his map for a few minutes until Kirk, the platoon sergeant, and Sergeant Lasky, the second squad leader, joined him. Lieutenant Jones began explaining the warning order at once. As he spoke he looked occasionally at his notebook or pointed to his map, spread out in front of the sergeants.

After giving them the "big picture" Lieutenant Jones said, "Sergeant Kirk, you'll be in command of the platoon covering force; you'll have Sergeant Lasky's — the second — rifle squad, the light machine gun, and a rocket launcher team. That (pointing) machine gun of heavy weapons company and the 60-mm mortar squad will remain here with skeleton crews. I'll be in charge of the rest of the platoon. When my group pulls out, the machine guns and mortar will remain in place, but spread out the 2d squad enough to maintain contact with both machine guns. Do you understand?"

"Yes, sir."

"How about you, Lasky? I want you to know everything about tonight's show. Anything can happen in the dark, and if it does — you're in command of the covering force." He turned to Kirk, "Not wishing you any bad luck, Sarge." Kirk laughed; Lasky was silent, as usual.

Lieutenant Jones continued, "Now remember, both of you, you've got to do two things: Protect the platoon as it withdraws, and try to make it look like the whole platoon is still in the line. This means you'll have to keep up the same amount of firing as last

night. And don't hesitate to call for final protective fires."

The two sergeants were writing hastily in worn notebooks.

Lieutenant Jones went on, "The company covering force will consist of one squad from each platoon. Lieutenant Short will command the company covering force. Sergeant Mace has gone with Lieutenant Smith to select the new positions in the rear. Incidentally, the reserve company will leave one platoon in its area."

Lieutenant Jones paused for a moment, then continued. "We don't know H-hour, so I can't tell you how long you'll have to remain in position before you withdraw. Our light machine gun and rocket launcher team will stay with you. In addition, that heavy weapons company LMG and our company 60-mm mortar will remain.

Sergeant Kirk interrupted with a question, "How long will I have command of our part of the covering force?"

"Until you rejoin the platoon — in the new position," answered Lieutenant Jones, and continued, "At H-hour the 1st and 3d squads, the 57-mm rifle squad and the rest of the weapons people who are not part of the skeleton crews begin their withdrawal. When you go back, Kirk, give the 1st and 3d squad leaders this information and check the 57-mm crew to see if they know about it. I'll check the 60's."

Lieutenant Jones turned and pointed out an area in the draw and then to a trail leading to the rear. "I'll move everybody into that draw to assemble. See that trail? 3d squad will use it, 1st squad will use the road on our right. Make sure the squad leaders move their squads along those routes to the platoon assembly area, which is directly to our rear in that big draw." (See Figure 1.)

Sergeants Kirk and Lasky looked closely as the lieutenant pointed out these features. They turned back to the map and Lieutenant Jones continued, "The squads will move under my control from the platoon assembly area to the company assembly area, which is about 300 yards to the rear of the company CP, in that open field we came through yesterday." He pointed it out on his map and said to Sergeant Kirk, "You'll use the same assembly areas for your covering force."

The lieutenant continued. "Two men each from the 1st and 2d squads will serve as guides during the withdrawal. Lasky, send your 2d squad guides here as soon as you return to your squad. Kirk, you take them and reconnoiter the route between the platoon and company assembly areas. Have them mark the route with engineer tape so they'll be able to follow it tonight." Lieutenant Jones pointed out the route on the map as Kirk bent over and studied the map carefully.

Jones went on, "The two guides from the 1st squad will guide the main body of the platoon as it withdraws. The two guides from your squad, Lasky, will guide the covering force. You wait here for the guides, Kirk. I'm going to see the other squad leaders, and I'll send the guides from the 1st squad back here. Move out as soon as they arrive, and come back here when you have completed your reconnaissance. Sergeant Lasky,

any questions before you go back to your squad?"

Lasky stared thoughtfully in the direction of the enemy a few moments, then asked, "That 81 observer going to be around tonight?"

Lieutenant Jones grinned, "You bet; and don't forget to bring him out when you withdraw. Use him all you like."

Lasky nodded and moved off to his squad. "There goes the best noncom in the platoon," Sergeant Kirk said, as he and the lieutenant watched Lasky go.

"Could be," Jones said, "have you any questions?"

"No, sir; I'm straight."

Lieutenant Jones double-timed to the 1st squad position and jumped into a foxhole with Sergeant Peterson.

He told Peterson to send two men immediately to Sergeant Kirk in the draw back by the 60 to serve as guides. Then he explained the withdrawal plans completely.

"Remember, Sergeant Peterson, the success of our withdrawal depends a great deal on you squad leaders keeping your men from getting noisy or excited. If you tell 'em where they are going — and why — and if you tell each man to stay put in his foxhole until you personally tell him to get out, then there won't be any confusion."

After he was sure that Sergeant Peterson understood his instructions, Lieutenant Jones moved over to the 3d squad area, where he repeated the withdrawal instructions to Sergeant Hill, the squad leader.

Lieutenant Jones next returned to his OP, where Daley was back in their hole.

A few minutes later the company commander was on the phone asking, "Everything all right?"

"Yes, sir," replied Jones. "We're all set except for the time."

"You'll get that by messenger. Anything else?"

"No, sir."

"Good luck, Jones." The captain sounded tired.

He had hardly finished the conversation when a company messenger arrived. From him he learned that H-hour was 2000 and that the covering force would pull out at H plus 4. "Captain says you'll get a jeep and trailer to move covering force weapons. The 60 will use the same vehicle."

Kirk came back. "Are the guides all set?" Lieutenant Jones asked him.

"Yes, sir, we marked the entire route between the platoon and company assembly areas."

"Good. H-hour for the withdrawal is 2000 hours — that's about 45 minutes after dark. The platoon will start the withdrawal on my order. You pull out your covering force at H plus 4 — midnight. Better call Sergeant Lasky and tell him too."

A sudden intense volley of small arms fire broke out. Lieutenant Jones saw at once that the fire was coming from the grove of trees to the front of the platoon.

"Looks like a patrol sneaked into those woods," said Jones. "Keep an eye on things while I go over to the 81 observer. I'll see if we can get some mortar fire on those woods."

Lieutenant Jones edged over the rim of his foxhole, dashed to the 81-mm mortar OP, and jumped into it. "Can you put about 18 rounds in that patch of woods to our front?" Jones asked quickly.

The FO picked up his phone. "I think so. We have a concentration registered there." His radio operator made the call, listened for a moment, then announced, "On the way!" Shortly afterwards, in rapid succession, *HE, light* rounds began to tear up the woods, sending dust and smoke into the air. The small arms fire ceased.

Back in his hole once again, Lieutenant Jones said, "Sergeant Kirk, your covering force will entruck in the company assembly area and will be transported from there to the rear. Two jeeps will be in the platoon assembly area right after dark. I'll use one for the main body's withdrawal. You use the other for your covering force weapons and the 60-mm mortar will go back on it, too. Keep your vehicle with you as you withdraw. Got that?"

Sergeant Kirk nodded.

"No hot chow here tonight, I'm afraid. K rations will be delivered after dark. You'll issue rations to your covering force in their foxholes. We'll all get hot chow in the new position in the rear. The aid station will remain open until midnight. Keep Lieutenant Short informed of everything that goes on during the withdrawal. He's in charge of the company covering force."

"Now here are your final instructions. Have the men get as much rest as possible, and above all, keep them quiet during the withdrawal.

"Any questions?"

"No, sir."

"OK. Go give all of this info to Sergeant Lasky."

Darkness was settling on the area. Lieutenant Jones called to Daley. "I'm going to see how the 3d squad is doing. Stick by the telephone."

"Yes, sir," replied Daley. The lieutenant climbed out and moved away.

An incoming mortar shell landed close to the platoon OP. Daley dropped to the bottom of his foxhole. Cautiously he pulled himself up, his attention attracted to a movement off to his left. It was Lieutenant Jones, dragging himself back to the OP. "Daley," he called.

Daley edged over the rim of the foxhole.

"Call Sergeant Kirk and then help me."

"Sergeant Kirk, on the double!"

Kirk dashed over to the OP as Daley helped Jones into the foxhole.

Jones looked at the blood oozing from his right thigh and shook his head. Ruefully he said, "Sergeant Kirk, I guess you take over."

Sergeant Kirk looked at him. "Can you travel?"

"I don't think it hit the bone," Jones said, trying to speak heartily, "I'm all right."

Kirk turned to the messenger, who was applying a compress to the lieutenant's wound. "Help the lieutenant back to the aid station, then get back here as quick as you can." Both men helped the wounded platoon leader out of the foxhole, and Daley and the lieutenant moved off into the night.

Sergeant Kirk wasted no time assuming command. First he called the company commander and reported, "Sir, this is Sergeant Kirk. Lieutenant Jones has been wounded; he's on his way back now. He had me take over the platoon."

There was a long pause. "Ser-

geant, do you understand all the details for tonight?"

"Yes, sir," Kirk replied, "Lieutenant Jones briefed me thoroughly on everything. I'm taking over for him and Sergeant Lasky's taking my place."

"OK, good luck," said Captain Harris, "keep in touch with me."

"Yes, sir."

Sergeant Kirk signaled for the two guides from the 1st squad.

"Roberts, go see Sergeant Lasky and tell him to come here," Kirk ordered. "Don't make any unnecessary movement or noise going after him." Roberts departed, and the platoon sergeant turned to the other guide. "Berry, you stay here as messenger until Daley gets back from the aid station."

Berry interrupted Sergeant Kirk, "Who's there?"

Kirk swung around and saw a soldier crawling toward the OP. The soldier gave the password, and Sergeant Kirk motioned him forward. The man dropped into the foxhole and identified himself as a jeep driver. "Got two jeeps and trailers with me. I was told to report here for instructions."

"OK, Berry, go with this driver to spot his jeeps and trailers in the platoon assembly area," Kirk said. "The jeep from the weapons platoon is to load the 57-mm ammo and extra small arms ammo immediately. That jeep will move out when the main body of the platoon moves. The other jeep will remain in the platoon assembly area and withdraw with the covering force. Come back to the OP as soon as possible."

As the two men disappeared into the darkness, Roberts and Sergeant Lasky dropped into the OP. "The lieutenant's been wounded," Sergeant Kirk told Lasky. "You take over the covering force. Better get your two guides here right away." Lasky sent Roberts to do this.

Kirk checked his watch; it was 1945 hours. He turned to Sergeant Lasky and said, "At 1955 hours I want you to send your two guides to tell the 1st and 3d squad leaders, and the surplus crew members of the light machine gun squad to start withdrawing at 2000 on the dot."

Private Daley and Pfc Berry returned from their missions to the rear. "Lieutenant Jones is at the aid station," Daley reported.

Berry said, "The jeeps are in the assembly area, and the drivers know the score."

"Good," replied Kirk. Roberts returned with the 2d squad guides. Kirk sent Berry and Roberts over to take up their position behind the 1st squad. Turning to Sergeant Lasky, Kirk continued, "Daley and I are going back to the draw behind the 3d squad. We'll guide that squad to the platoon assembly area. Roberts and Berry will guide the 1st squad into the platoon assembly area. Lasky, you're in charge just as soon as the main body withdraws. Any questions?"

"Can't think of any," Lasky said, moving over to sit with the two guides from the 2d squad. His quiet instructions to them were exact and thorough.

Sergeant Kirk and Private Daley moved out to take their positions behind the 3d squad.

"1955," Lasky finally said to Schmidt and Scott, the guides of the 2d squad. "Okay, move out. Tell all but the covering force to withdraw. Be as quiet as possible.

Return here after you've finished."

Pfc Schmidt moved carefully over to the left front of the platoon position and gave the 3d squad leader his instructions to withdraw at 2000. Then he moved over to Sergeant Morse, the acting 2d squad leader, and said, "The main body of the platoon is withdrawing. Sergeant Lasky said to spread your squad over the platoon front like you planned it this afternoon."

In the meantime, Pfc Scott was giving the withdrawal order to Sergeant Peterson of the 1st squad.

The two guides returned to the platoon OP to report that the squads had begun withdrawing.

As the individual members of the squads withdrew, carrying back all extra ammunition, the squad leaders cautioned the men to be extremely quiet. Sergeant Lasky observed as much of the withdrawal as he could in the dark, and then helped direct his covering force men as they spread out over the platoon position.

As the first members of the 3d squad began to arrive in the draw, Sergeant Kirk and Daley guided them to a position to wait for the other members of the squad. As soon as the squad was assembled and checked, Sergeant Kirk led it to the platoon assembly area.

The 57-mm rifle squad leader passed and told Sergeant Kirk that all his men were present and that the recoilless rifle and ammunition were loaded in the jeep.

Meanwhile, the 1st squad had assembled in rear of their position where the two guides were waiting. The squad was accompanied by men from the heavy weapons company's machine gun section, except for the skeleton crew that had been left with the gun in the rifle platoon's area. The squad leader checked the men and formed them in single file. They moved out of the platoon assembly area, with the guides leading the formation. When they reached the platoon assembly area, Sergeant Kirk told the squad leader to load all extra ammunition on the jeep.

Kirk checked his platoon. All were present. Kirk said, "Get the 1st and 3d squad leaders, and the two guides."

Daley left at once.

When Daley returned with the squad leaders and the guides, Sergeant Kirk said, "All right, here's the march order. You 1st squad guides lead the column; 1st squad follows; then the 3d squad. 3d squad leader, you bring up the rear. I'll follow the 1st squad. We might meet other friendly units who are withdrawing, so don't fire except on my orders. Any questions?"

There were no questions, and Sergeant Kirk turned to the guides. "Watch the men behind you to make sure the formation is keeping up."

After the platoon lined up, Sergeant Kirk checked the formation and called softly, "Move out." The pieces of engineer tape used to mark the route made it easy for the guides to follow the trail in the dark.

When the main body of the platoon arrived at the company assembly area, Sergeant Kirk reported to the company commander that all men were present.

Back with the covering force, Sergeant Lasky called the company covering force commander, Lieutenant Short, and reported his

men in position and that the area was quiet. (See Figure 2.) He had the K rations issued and then sat quietly, watching the front. His two guides were with him.

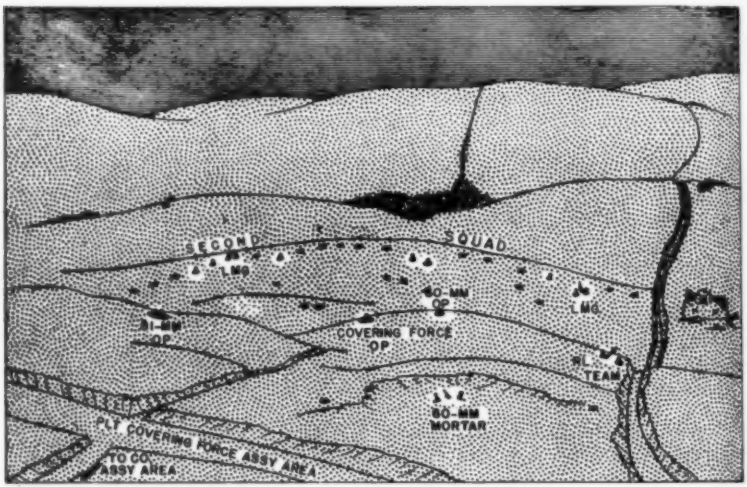

Figure 2. Covering force positions after withdrawal of major portion of the platoon.

Suddenly there was the *swoosh* of an artillery shell, and an explosion ripped the ground in front of the platoon OP. The three men ducked. The shelling increased, and for some minutes the men were forced to stay down. Finally the fire shifted to the rear, and Sergeant Lasky carefully pulled out of his foxhole. A burst of incoming automatic fire hit near the OP.

The thin line of riflemen began returning the fire. A burst of automatic fire dug up the ground near the left flank machine gun. Lasky picked up the sound-powered telephone, whistled into it, and waited anxiously for an answer.

At the sound of a voice at the other end Lasky requested the final protective fires in front of his position. He put the telephone back and looked calmly out over the front. Like clockwork the artillery, the 81-mm, and the 60-mm shells began falling. After a few explosions the enemy small arms fire began diminishing. Finally it ceased altogether. As suddenly as they began, the protective fires ceased, but the covering force rifles and machine guns continued firing sporadically. Finally they also were quiet. The final protective fires and the fire of the covering force had done their work well.

Quietly Lasky turned to his guides. "Scott, contact the men

up front to see if any of them were hit." Then he turned to Schmidt. "Go back to the platoon assembly area and see if the jeep drivers are OK."

Shortly afterwards Scott crawled back. "One heavy weapons company machine gunner was hit in the arm. Not seriously. He's OK."

A whistling sound from the telephone interrupted Scott. Lasky picked up the phone. Lieutenant Short was checking on the situation. Lasky gave his report and stated that everything was under control.

The next few hours passed with little disturbance. An occasional artillery round fell in the area and the riflemen of the 2d squad fired briskly a couple of times at suspected patrols. It was just another fairly quiet night on line.

Finally, Sergeant Lasky looked at his watch. Two minutes to go. He looked to the front for a while and then back at his watch. It was H plus four — midnight.

"OK, Scott, contact my squad and tell them to pull out. I'll be in the draw to guide them to the assembly point. Tell them to move out quietly." Then, to Schmidt, "Contact the light machine gun crew of the heavy weapons company and see if they need a guide to the rear. Help carry the gun or the ammunition so the injured man won't have to work." Both men nodded their understanding and crawled out of the foxhole.

Lasky disconnected his phone, crawled out of his foxhole, and moved to the rear to meet his squad.

Schmidt and the light machine gun crew arrived first, then the 81-mm mortar FO and his radioman. Lasky checked the wounded machine gunner and told Schmidt, "Guide them back to the platoon assembly area, and put this man in the jeep with the light machine gun."

As the members of the 2d squad arrived Lasky directed them to the assembly point. On their arrival in the platoon assembly area the light machine gun, the rocket launcher, and extra ammunition were loaded onto the jeep trailer. The mortar crew, already in the assembly area, gratefully loaded its burden of mortar and ammunition on the trailer.

Loading completed, Sergeant Lasky instructed the guides to take their place to lead the formation to the company assembly area. He placed the 2d squad behind the guides, followed by the jeep, the light machine gun crew, and the rocket launcher team. Sergeant Lasky took his position behind the 2d squad.

When Sergeant Lasky arrived in the company assembly area with his force, Lieutenant Short was busy loading the other covering forces into vehicles. A guide directed the men to assigned vehicles. After checking the units to make sure that all the men were loaded, Lieutenant Short gave the signal to move out.

This platoon's withdrawal worked! Why? Because it followed simple and logical steps. Let's review them briefly.

Preparation began when the platoon leader received the warning order.

A covering force leader was selected.

Advantage was taken of the remaining daylight hours to explain clearly the withdrawal to the key

platoon personnel so that they could pass the information on to their men. This thorough orientation made it possible for Sergeant Kirk to assume command with no loss of time when the platoon leader was wounded.

Guides were selected and taken on reconnaissance from the platoon position to the platoon and company assembly areas. The routes were marked to make them easy to follow at night.

The company withdrawal order was issued, and the exact time was set.

The platoon leader received transportation for his crew-served weapons. At H-hour, the main body of the platoon moved out quietly to the platoon area and then to the company assembly area.

The platoon covering force commander simulated normal platoon activities and called for final protective fires when he needed them.

At H plus four, the covering force withdrew, assembled in the platoon assembly area, and was guided along the marked route to the company assembly area. There the men were loaded in vehicles and taken to the new positions in the rear.

"There is very great danger in making retrograde movements at night even when these movements are for a continuation of the tactical offensive, because troops not involved hear or see them and become worried to the extent of panic. If a unit must be withdrawn see that all soldiers along the line of withdrawal are informed why it is taking place and when it will occur."

General George S. Patton, Jr.

INFANTRY WEAPONS IN KOREA

By LT JOHN O. POTTS, Infantry and
LT HAROLD L. WHEELER, Infantry

This is a two-sided article presenting Lt Potts' observations on the performance of our Infantry weapons in Korea, on one side, and Infantry School views on those same weapons, on the other. Lt Wheeler, representing The School, is a Korean veteran as, of course, is Lt Potts. Lt Potts' comments appear first on each weapon followed by Lt Wheeler's (The School's).

M1 RIFLE

The M1 rifle will operate consistently in all climates *if kept clean.* Lubrication is not absolutely necessary and since its parts are not precision fitted, the operating units will continue to function as long as there is clearance between surfaces. Dirt and grime on the camming recess of the operating rod, on the locking lugs, or in the gas cylinder will cause stoppages and malfunctions. Our main source of trouble was gas slippage past the piston head. This might be remedied by modifying the piston with piston rings as in the BAR. This would boost the usefulness of the gas and eliminate most of the slippage.

It is true that the M1 rifle will operate consistently in all climates if kept clean. However, to permit a continuous high volume of semi-automatic fire certain machined surfaces (operating lug, locking lugs on the bolt, cocking cam, and locking recesses) should be lubricated. One of the most important single reasons the M1 is the most outstanding military rifle in the world today is its ability to continue its mission in the field under adverse conditions with a minimum of care and maintenance.

When the piston head becomes worn and its sharp corners rounded, the rifle loses gas efficiency and may fail to function reliably. FM 23-5 states "that in disassembling or cleaning the rifle care must be taken that the corners of the gas cylinder lock screw or piston head are not rounded." The use of abrasives such as sand or steel wool in cleaning the piston will cause wear and no doubt will allow some gas to escape to the rear. Badly worn pistons should be replaced. However, a malfunction caused by insufficient gas will more likely be caused by one of three reasons: (a) a loose gas cylinder lock screw, causing a leakage of gas to the front, (b) insufficient gas reaching the gas cylinder due to dirty gas port, or (c) excessive friction on the moving parts of the rifle, as a result of which the gas cannot move the parts far enough to the rear. The addition of piston rings as on the BAR might possibly be helpful in reducing loss of gas caused by a worn piston; however, their use was examined and deemed unnecessary during the early development of the M1 rifle.

CARBINE

The carbine is a fine weapon in dustless areas. Korea is extremely dusty in summer and many stoppages were caused by even small quantities of dust. Most personnel initially armed with the carbine switched to the M1 rifle because the latter was so much more dependable. Another trouble was that the carbine has too many small moving parts. It often becomes undependable and temperamental, firing one minute but not the next.

Other reports from the combat zone in Korea have indicated that the carbine encounters considerable stoppages, especially during the dry, hot, and dusty summer months. Soldiers armed with the carbine should realize that most stoppages are caused by dust and dirt in the working parts, and should therefore take particular pains to clean and care for their weapon. Always remember: the carbine is not intended as a replacement for the M1 rifle. Each has its own purpose.

BROWNING AUTOMATIC RIFLE

The BAR is a good supporting weapon for the squad; but often overemphasized as to its ability and firepower. However, if common sense is used and the rules of conservation are observed, your troubles are eliminated. It is a precision built weapon and must be kept clean and lubricated. Overhead feeding would remedy most of the magazine-caused stoppages.

The BAR, as well as any weapon, can be overemphasized. However, compare its firepower, range, accuracy, and mobility with other weapons of its type and you find the BAR hard to replace. Many present and past unit commanders tell us that you can't overemphasize the value of the BAR.

Tests indicate that overhead feeding will not eliminate stoppages caused by the box-type magazine. The additional but slight effect of gravity does little to cure stoppages due to magazine difficulties. The weapon's usual stoppages are due to the presence of dirt or sand. Overhead feeding would increase the possibility of sand and dirt getting into the receiver and chamber from the magazine. Furthermore, major modifications in our present model BAR would be necessary to permit overhead feeding.

PISTOL

A rugged hand weapon, the pistol is suitable for its designed purpose. It is always dependable.

Many soldiers have made hasty remarks against the .45 cal. pistol. Lack of individual marksmanship training is felt to be the real reason for most of these comments. Our pistol compares favorably with any of the world's weapons designed for the same purpose. However, development is under way to lighten the weight of the pistol.

3.5 -INCH ROCKET LAUNCHER

The 3.5-inch rocket launcher is the answer to a rifleman's prayers for a tank killer! The "superbazooka" leaves nothing to be desired. It is light, accurate, not cumbersome, simple to operate—and results are terrific. We never used more than one round to stop a T-34, and in most cases the tank was damaged beyond repair.

No comment!

LIGHT AND HEAVY MACHINE GUNS

The light and heavy .30 caliber machine guns are superior to any we ran up against. They are completely dependable in all climatic conditions.

Even though our .30 caliber machine guns are doing a superior job, tests are continuing to provide better and lighter guns for the Infantryman. A new and lighter tripod for the HMG, weighing only 25 pounds, is one example of the new developments in this field.

60-MM AND 81-MM MORTARS

Both the 60-mm and 81-mm mortars are adequate. The new M-77 time and superquick fuze for the 81-mm HE and WP shells greatly increase the capabilities of the 81-mm.

We found a Chinese version of our M-4 sight which I believe is superior to ours. The collimator is set on a circular base graduated into 6400 mils in 10 mil segments. A vernier knob permits fine adjustment. The advantage lies in the fact that only one aiming post is needed, and large deflection shifts are made directly and rapidly. It simplifies the gunner's job and eliminates the possibility of errors in laying on the wrong aiming post.

Both mortars could be improved by the addition of circular baseplates with 360° traverse.

The 81-mm mortars being used in Korea are classed as limited standard. The new standard 81-mm mortar and 4.2-inch mortar are capable of a 360° traverse without shifting the base plate. A new sight is also being developed that is capable of a 6400 mil adjustment. It is far superior to the Chinese version of our M4 in that it is a panoramic-type similar to that used on the 75-mm recoilless rifle for indirect fire missions.

RECOILLESS RIFLES

The recoilless rifles add tremendously to the "packaged punch" needed by Infantry. We never went anywhere without our 57's and in some cases even carried 75's in the attack. We employed the rifles as far forward as the support platoon of the lead company. We didn't use them for indirect fire. Results of indirect fire from supporting artillery units were much better than could be obtained from the recoilless weapons. Incidentally, recoilless weapons don't draw any more fire than a BAR or machine gun. As soon as the section leader had placed a rifle in one position he began scouting around for a new position. Usually the crew fired only three or four rounds from one position and then displaced to a new one.

Many of the officers in my battalion felt that the 75-mm rifle platoon should be enlarged to forty-two men. We also felt that the transportation should be increased to provide greater mobility. I believe that the present 75-mm rifle platoon lacks sufficient personnel to operate all four rifles.

We also felt that when the 105-mm recoilless rifle becomes available, the 75-mm rifle platoon should be re-designated as the *recoilless rifle platoon.* We felt that there should be one two-squad 105-mm rifle section and one two-squad 75-mm rifle section; each squad having one recoilless rifle. The en-

tire platoon should be mounted in ¼-ton trucks or small tracked vehicles.

The question of increasing the personnel in the 75-mm recoilless rifle platoon has been considered. Remember that current doctrine does not envisage that all four rifles will normally be used in the attack. Sufficient men are available to man all four rifles during the defense if ammunition does not have to be hand-carried for long distances.

At the time of this writing, the place of the 105-mm recoilless rifle in the Infantry T/O&E has not been determined. Apparently, however, the size and weight of the piece will require it to be mounted on a light vehicle of some type.

LIGHTER RIFLE?

We often exchanged ideas over the possibility and advisability of a lighter standard rifle for the Infantryman. Some suggested it be designed around a new cartridge. A caliber .30 bullet weighing around 100 grains, should be adequate. Then, build two rifles, one standard and the other of light weight — replace the present carbine — with both using the same ammunition. It is the ammunition load which slows the soldier moving cross-country, so that with a lighter rifle and ammo he could maneuver more rapidly.

A .30 caliber bullet, weighing approximately 100 grains (50 grains less than our present one), would be too light for the Infantryman's demands. Due to its decreased weight, the effect of wind would be highly undesirable at ranges in excess of 200 yards. Light bullets lose their velocity much faster than heavier ones. Therefore a lighter bullet with the same, or less, muzzle velocity would have an undesirably high trajectory and less penetrating power. However, tests are being conducted to develop a lighter weight rifle with more firepower than the M1.

EMERGENCY SWITCHBOARD

By M/SGT WALLACE C. THORNELL

Too many units find themselves short of T/O&E equipment when training their men or find that the amount designated by the Table of Equipment is not enough for training purposes. This is particularly true of communication equipment. Switchboards, for instance, are always at a premium. The Infantry School has improvised a switchboard, constructed at a cost of only $2.70, that will take the place of the SB-18/GT for training use, or supplement that item of equipment when extra switchboards are needed for an installation. (See Figure 1.)

The SB-18/GT is a very light, easily portable, moisture resistant emergency switching center for local battery lines using either the Telephone EE-8 or Sound-powered Telephone TS-10 for the operator's phone. The improvised board duplicates the functions of the SB-18/GT, lacking only the moisture-resistant qualities and a small degree of the portability afforded by

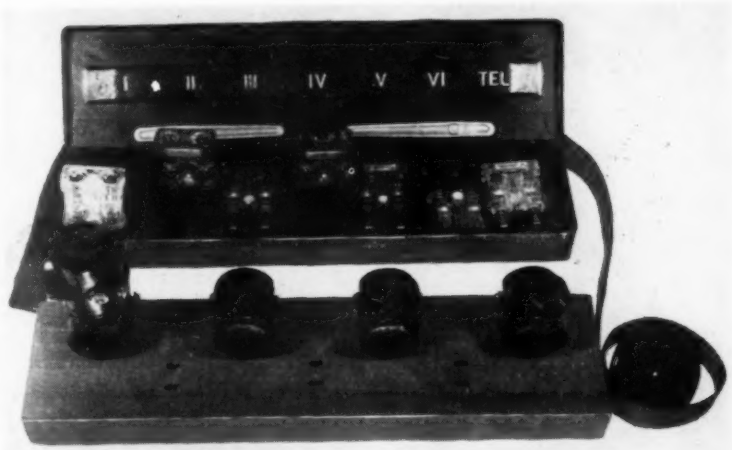

Figure 1. SB-18/GT and an improvised emergency switchboard used to supplement the standard item, or to replace it. The improvised board shows only five of the seven plugs it is possible to use with it.

the standard item.

Any reasonably well-trained communication personnel, using hand tools, can construct the improvised board.

A board requires the following easily obtained commercial items:

7 — Plugs, cube-type bakelite
7 — Lamps, NE-2, 110-volt (small neon lamp)
21 — Screws, machine, ½-inch long, #4-36, w/nuts
28 — Washers for #4 screws
1 — Block of wood, 1-inch by 3-inches by 12-inches. (This block holds the plugs — as many as seven)

These are the tools needed:

Soldering iron and solder
Bit, twist steel, 1/8 or 9/64 and 17/64 or 9/32
Hand drill (power drill will speed the work but is not required)
Pliers, TL-126, chine nose
Screwdriver

CONSTRUCTION

Most of the work of constructing this improvised switchboard comes in converting the electric plug into a telephone switchboard plug. This modification involves two changes:

1. Adding two screws to receive the incoming wire line.
2. Placing a lamp across the terminals to provide a visual incoming signal to the operator.

LINE TERMINAL CONNECTION: First, bore two 1/8-inch or 9/64-inch holes, on opposite sides of the plug, through the bakelite and on through the spring contacts inside the plug.* Line up the drill by scratching a line on the bakelite from female receptacle to female receptacle and drilling on this line about 3/8-inch from the end of the plug. (See Figure 2.)

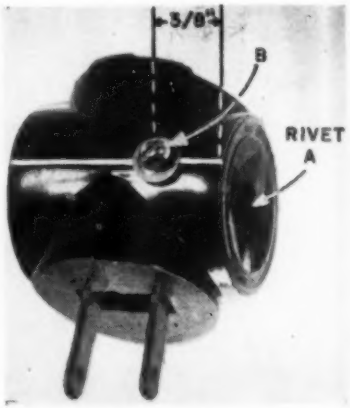

Figure 2. Position of line-terminal connection (Screw B). A similar connection is made on the opposite side of the plug for the other line connection. "A" indicates the rivet that holds together the two halves of the bakelite plug. This rivet is removed to disassemble the original plug.

The next step is to remove the rivet that holds the two halves of the plug together (rivet indicated as A, Figure 2). To do this, simply drill off the head of the rivet with the 17/64-inch or 9/32-inch bit. Use care not to damage the bakelite plug itself. Bore off only the head of the rivet.

Remove the rivet and take the plug apart. Among other parts, you will have two spring contacts. The holes bored previously will have gone through one end of each crosspiece of these contacts. Crimp each

*Use care to make sure the drill goes through the center of the spring contacts inside the plug.

of these drilled ends together. (See Figure 3.) Solder a nut on the inside of each spring contact thus bent over, centered over the hole previously drilled through the contact. (See Figure 4.)

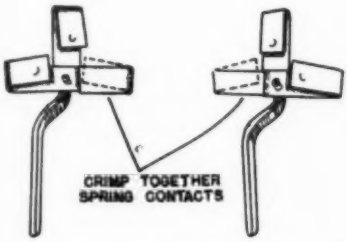

Figure 3. One end of each crosspiece of the spring contacts is crimped together.

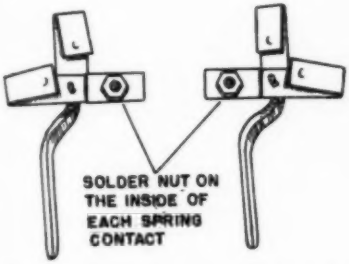

Figure 4. Solder a nut on each of the spring contacts as shown. Center the nut over the hole previously bored through the contact.

To each of the spring contacts, near the nut, solder a lead from the base of the lamp NE-2. (See Figure 5.)

With the 17/64-inch or the 9/32-inch bit, drill about 1/2-inch into each half of the plug at B and C. (See Figure 6.) The base of the lamp, NE-2, will be seated in this recess. Using the same bit drill a similar hole into the other half of

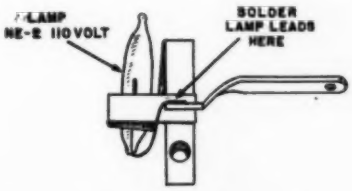

Figure 5. Solder lamp leads as shown to each of the spring contacts.

the plug at B to receive the top of the lamp. Using the 1/8-inch or 9/64-inch bit, continue this hole on through the plug. This tiny opening will allow the operator to see

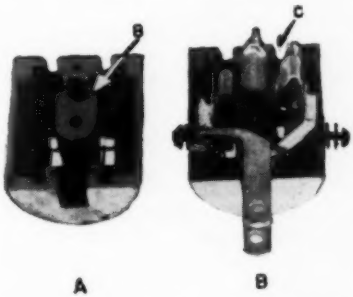

Figure 6. The tiny neon lamp. NE-2. is seated in a hole bored a half-inch deep into each of the sections of the bakelite plug. Figure 6-A shows one of these holes (indicated by the arrow B). Figure 6-B shows the lamp (C) in place in the other half of the plug.

the flash of the light when it is turned on by an incoming signal. (See Figure 7.)

Replace the spring contacts in the plug and seat the lamp in its

recesses. Place two washers on each screw, then push the screws through the holes previously bored in the bakelite and fasten securely

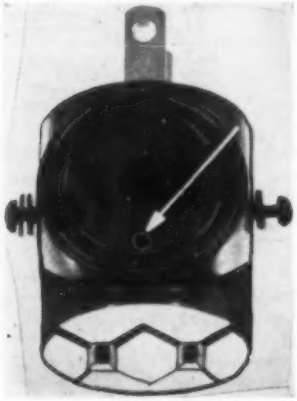

Figure 7. The operator sees the flash of the lamp through the hole indicated by the white arrow.

into the nuts soldered to the spring contacts. This provides the line terminal connections, secures the spring contacts to the plug, and places the lamp across the line. Put the two sections of the plug together and fasten them together with another nut and screw. Be careful not to crack the plug by tightening the screw too much.

A receptacle for the plugs is furnished by the board shown in Figure 8. A strip of acetate may be fastened to the front of the board and the identification of each plug indicated with grease pencil.

Incoming wire lines are connected to the plugs by baring 1/2-inch of the wire about an inch from the end. The insulation left at the end of the wire holds the steel and copper strands of the conductor together when it is connected to the plug. Loosen the screws at the sides of the plug, loop the bared wire and place it between the two washers. Tighten the screw for a good electrical connection.

Tie the incoming lines to a stake or some other support before connecting them to the board so the plugs will not be pulled loose or jerked from the board. Allow enough slack between the support and the board to permit the operator to interconnect all plugs.

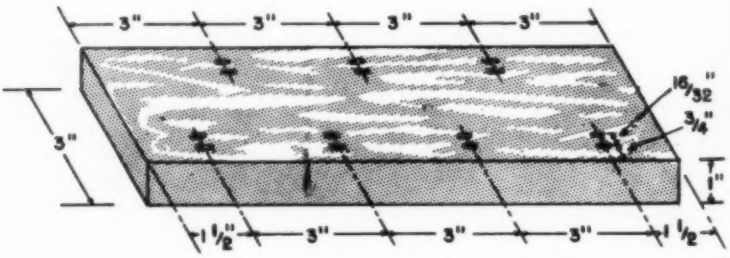

Figure 8. Receptacle board for plugs.

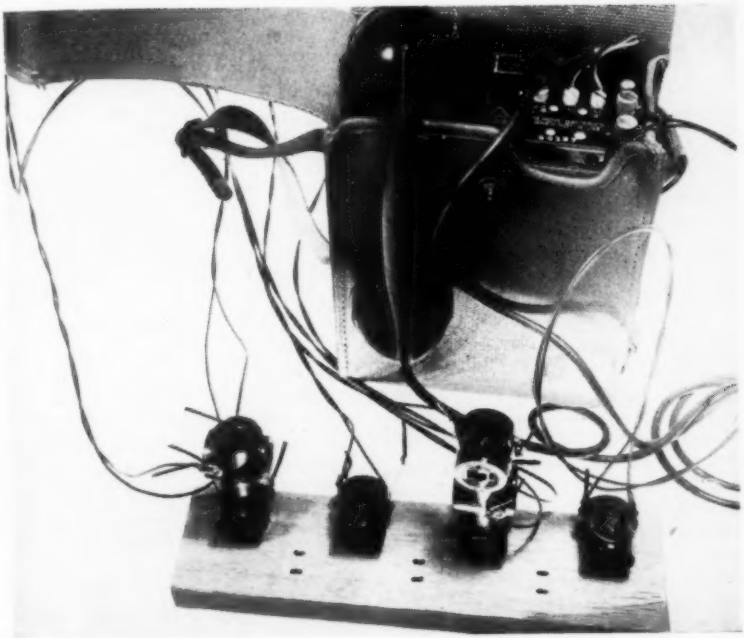

Figure 9. Improvised board in operation with Telephone EE-8 as the operator's telephone.

After connecting the wire lines, place the plugs in the board, with the operator's plug on the right for a right-handed operator, and the lamp holes facing to the front.

The board may be placed on any flat surface to operate.

Figure 9 shows a board in operation with a Telephone EE-8 as the operator's instrument.

ARMY REPLACEMENT SYSTEM

By LT COL ROBERT J. DANIELS, Infantry

The operation of the Army replacement system with its deficiencies as it existed during World War II is well-known to many who embarked upon overseas combat careers in those days tagged simply as "Replacement, Infantry Unit Commander, MOS 1542." The considerable experiences of World War II and the Korean "incident" have brought about changes in the system aimed to speed a happier, healthier soldier to the unit requiring his services.

The importance of an efficient replacement system to an officer of the combat arms can never be overemphasized, for this system can mean the difference between success or failure in modern warfare. The Infantry commander as well as the staff officer must understand the functioning of the replacement system because, during combat, approximately 90% of all replacements receive combat unit assignments with the great majority being assigned to the Infantry.

Combat loss statistics of World War II indicate the reason for the Infantry's eternal need for new men. Nothing has been found to date in the battle experiences in Korea to disprove these facts; rather, they have been vividly confirmed by many months of hard fighting.

During combat, the two primary factors causing loss of strength within our Infantry units are (1) disease and sickness; and (2) combat casualties. From experience, confirmed by our medico friends, we know that disease and sickness rates during combat will generally be fairly constant and at a low predictable percentage. On the other hand, combat casualty losses will vary quite radically from time to time. These fluctuating casualty loss rates result from a great number of factors. The terrain, the weather, the characteristics of our enemy and his weapons, the type of operation, the overall duration of combat are but a few of the factors affecting casualty rates. It is not necessary to digest completely a set of cold impersonal percentages for an Infantry commander to realize the approximate ratio of his T/O strength to the high numbers of casualties he may sustain in combat. Fluctuate as they will, the percentages of casualties in the Infantry are always high. This means the Infantry commander must plan soundly for the effective integration in combat of large numbers of replacements into his command if he has any reasonable hope of continuous success in battle.

An adequate and timely supply of trained combat replacements has always been a problem of major proportions to any nation and any

army. Manpower shortages and replacement problems in the United States Army have existed through many wars and many years. During World War I partially trained divisions in the Zone of the Interior were decimated to provide sufficient replacements to General Pershing's AEF.

For example, the 33d Infantry division, some 20,000 strong, was completing initial training in the States in the early days of World War I. The pressing need for overseas replacements required almost the entire division to be transferred piecemeal as casuals to be employed as combat replacements.

To those who served with the 86th "Blackhawk" Division and some other combat units in training in the Zone of Interior during World War II, this job of rebuilding and retraining a combat organization will sound painfully familiar. Again, at the outset of the Korean incident we found practically all organizations in the States being virtually stripped of personnel to provide replacements for units in the Far East. While the control of the factors which create these sad circumstances are not within our grasp, at least we must be prepared with a sound and workable combat zone replacement system once the replacements are procured and forwarded overseas from the Zone of Interior.

Providing replacements for an active theater of operations is a big business. The size of the theater replacement system is determined by the location of the theater and the combat situation. For illustration, by "V-E" Day in Europe the theater had fifteen replacement depots consisting of a total of 79 replacement battalions engaged in the various specialized jobs of handling replacements. In Korea today there is one replacement depot on the Japanese mainland with two replacement battalions on the Korean peninsula. In large scale operations the replacement system operates best when "single mission" functions of a specialized nature are assigned to replacement installations. For that reason, specialized units such as port or receiving depots, combat troop and service troop stockage depots, hospital returnee depots, and training depots are found in varying numbers within a large theater of operations.

Of all the various types of replacement installations found within the theater the Infantry commander is interested in but one: the *field army replacement depot.* This is the installation that provides the division and regiments with our replacements during combat.

One field army replacement depot is normally assigned or attached to *each field army* in combat and is the operating agency of the field army's replacement system. The field army replacement depot consists of a *depot headquarters* and *three stockage battalions,* and *one forward replacement battalion for each active corps within the field army.* (See Figure 1.) The depot's mission is to provide suitably trained, physically fit, and properly equipped replacements to units of the field army in accordance with approved requisitions.

Heretofore, the replacement depot (T/O&E 12-42) has been an

Adjutant General's Corps installation, as it was during World War II. However, changes are being made. At the insistence of The Chief, Army Field Forces, this installation is in the process of being made a "branch immaterial" unit with possibly a new title of "Replacement Group." Further, Field Forces is revising the T/O&E's of these replacement depots to eliminate completely the so-called "nontactical" officers and replace them with good solid MOS Code 1542's: Infantry Unit Commanders. This is a major step forward, the common reaction of Infantrymen being, "Why was it so long de'ayed?" Inasmuch as the majority of personnel passing through the replacement depots in the combat zone are destined for Infantry assignments, it is felt that combat-experienced Infantry officers on duty with the replacement installations better understand the problems of the new green replacements going forward to face combat for the first time and that "we will be able to take care of our own." But getting this concession is but half the battle . . . the Infantry must furnish high-type, fully qualified personnel to fill these jobs if it hopes to improve and refine the techniques of handling and forwarding replacements in combat!

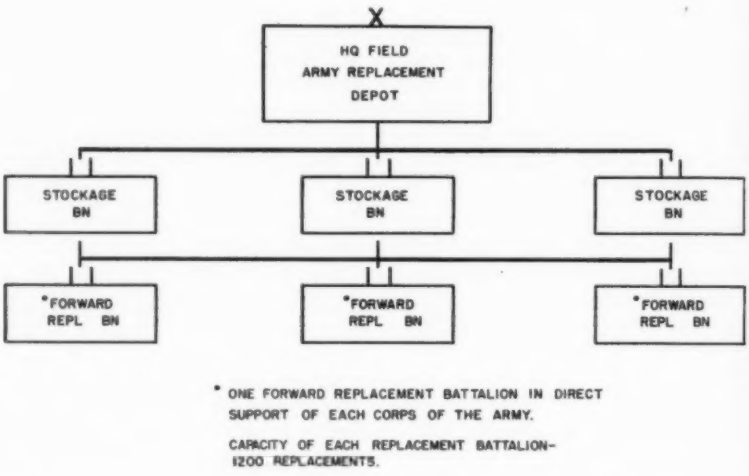

Figure 1. Field Army Replacement Depot.

The field army replacement depot headquarters, together with the three stockage battalions of the depot, is normally located on a good road net near the field army headquarters. If personnel is forwarded by rail rather than motor transport, the installations must be within

easy marching distance of a good railhead.

The forward replacement battalions of the depot supporting the various corps are well forward in the corps area, reasonably near the corps CP to facilitate liaison, communication, and coordination with the corps, and units and divisions of the corps. The corps itself has no direct responsibility for the replacement support of the divisions within the corps nor does it enter into administrative assignment procedures for replacements, since it is a tactical and not an administrative headquarters. (See Figure 2 for a schematic diagram of the combat zone replacement system.)

The field army replacement depot and its component parts receives and processes all replacements, classifies and assigns them, controls troop movements, supplies and equips the replacements, trains and orients them, and looks out for their welfare and morale while they are within the depot.

To prevent physical and mental stagnation, and to preserve a high degree of morale, there is a great need for a complete, active program for the replacements while they remain within the depot installations. This is no small job, for the flow of replacements may exceed 50,000 per month. There must be a realistic training program conducted by actual veterans with recent combat experience. It should stress physical conditioning and hardening as well as the latest combat techniques.

The common complaints of personnel forwarded by replacement installations in the past war centered on the monotonous inactivity, substandard living conditions, and habitual overcrowding endured while in these units. Due to the relatively secure rear area positions of the depots there should be the highest possible standards of living conditions consistent with the situation. The inactivity can be licked by intensive, profitable training, orientation, and morale activities. At times, this is no small job. In England alone just before the Normandy invasion the stockage of replacements within the various depots amounted to some 86,000 men; quite a family to keep busy and happy while waiting to be sent forward.

Both the stockage battalion and the forward replacement battalion are identical in organization and they function under the same T/O (T/O&E 12-46). The capacity of each is 1,200 replacements. The stockage battalions handle the preponderance of replacement processing while the forward replacement battalion is expected to hold the replacements only for a brief period of time (from 24 to 48 hours) to break a long period of travel from the rear, and then is expected to release replacements to the organic replacement companies of the front-line divisions.

The field army replacement depot has two major sources of replacements: first, replacements received direct from the Zone of Interior; and second, miscellaneous sources from within the theater. The present replacement doctrine, not yet put into effect, calls for replacement shipments to overseas theaters to be made in company-size groups originating in the state-side training centers. These groups

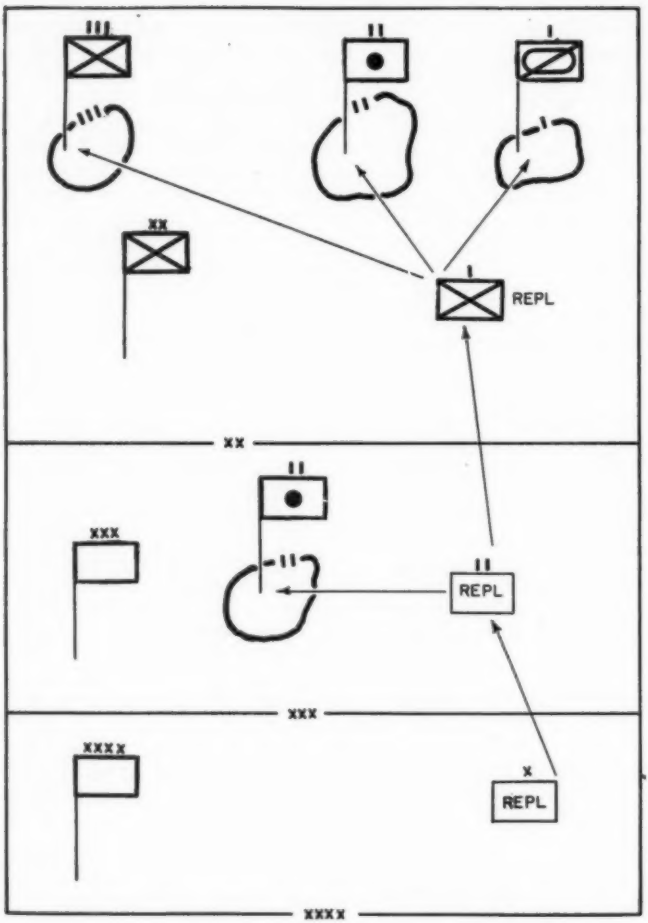

Figure 2. Combat zone replacement system. Replacements move forward from the stockage battalions at the field army replacement depot to the forward replacement depots in the corps areas. Here, a few replacements are diverted to corps units, such as the corps artillery battalion shown here. The balance continue forward to division replacement companies. These are then assigned to division units with which they will serve — the Infantry regiments, artillery battalions, division reconnaissance company, and others.

are called replacement packets. Each packet is to contain replacements with the same, or related MOS and is to be officered by officers going forward as replacements.

This group or "packet" should remain intact as long as possible, at least until its arrival overseas at the field army replacement depot, and preferably as far forward as the division replacement company. Even when assignment to units within the division takes place, preservation of the integrity of groups within the packet should be considered.

The grouping of replacements into "packets" is a sound doctrine. At the training center it will form into a group . . . replacements who will train together, live together, travel together, and who possibly may come from the same geographic area within the States. They will have a great deal in common. Remaining as a group, throughout their movement in the replacement stream, they can further the friendships, and form into "buddy" groups of their choice. This aids materially in the adjustment of the individual soldier to his rapidly changing situation while in the replacement stream facing the grim realization of imminent combat. It is an organization with which we can combat the "all alone" feeling that always prevails in the mind of an individual replacement. All of this specialized handling should pay off in the improved morale, which is a prime factor at this critical point in the career of the replacement. It is true that specialized handling will cause additional administrative work. The extra work is of little importance if we can improve replacement morale and keep it high. Too often in the past, administrative requirements have predominated at the expense of replacement morale. For instance, during World War II, ports of embarkation on the Pacific Coast refused to outload replacements unless the passenger listings were in strict alphabetic order. Combat replacements had to choose their associates on the basis of their position on an alphabetical roster!

Since the end of World War II, numbers of studies have endorsed the doctrine of replacement packets. The size of the packet has been at times suggested as a squad or platoon, as well as a company, with special emphasis on the benefits to be derived from the buddy associations. Some have suggested that the packet be integrated as a tactical unit into Infantry front line units. As yet, the doctrine of replacement packets has not been put into effect by the Department of the Army. We continue to do business in this respect in the same creaky fashion as we did in the past war.

Replacements are moved to the field army replacement depot from the Zone of Interior by the fastest means of transportation available. The commander cannot preclude the possibility of receiving replacements by air. In December 1944 appreciable numbers of replacements were flown from the United States to the ETO as sorely needed man-power for the then-critical Battle of the Bulge.

During the early days of the Korean conflict, air transport was used to move individuals and units from Japan to the Korean battle

zone. Also, considerable numbers of replacements were flown from the Pacific Coast direct to Japan and thence to Korea. During the early weeks of the Korean fighting an entire ordnance company, bound for Korea, was lifted by commercial air liners from Fort Benning, Georgia, to the West Coast. It was nothing short of sensational to be off to the wars in such splendor which included meals served aloft by a pert airline hostess!

Processing time at West Coast ports for enlisted personnel has been cut to 24 hours with the individuals ready to move by the first available transportation any time after the first day. Officer replacements are also processed rapidly with only a 12 to 36 hour delay. Incidentally, of all officer replacements processed, 98% have been moving to Japan by air.

All of this speedy processing at the ports of embarkation is not sheer coincidence. After World War II, Army Field Forces, in a study of the matter of training and forwarding replacements in time of war, recommended that new replacements be moved overseas as rapidly as possible direct from their training camps. It was believed that all time-consuming delays or stays at the ports of embarkation for inspections and POM checks could be eliminated. This processing should take place, instead, at the home station prior to movement. It was felt that replacements should be received in the combat zone within earshot of artillery as quickly as possible after entrance into the replacement stream. This will help materially in maintaining the physical and mental condition of the replacement and avoid deterioration and the loss of training proficiency which would otherwise occur. This is a far cry from the early days in the Pacific Theater in World War II when as much as six months was required in the replacement stream before a soldier finally reached his tactical organization!

A second major group of replacements for the field army replacement depot comes from various miscellaneous sources within the theater of operations. The more important of these sources include hospital returnees and retrained personnel.

A hospital returnee is an individual who has been wounded or injured and been dropped from the organizational rolls while undergoing medical treatment in the rear areas. Upon discharge from the Communications Zone hospital, the hospital returnee is returned to duty or reassigned through the replacement depot and its battalions. Obviously, the longer any war lasts, the more hospital returnees are returned to duty or reassigned through the replacement depot and its battalions. If the hospital returnee is physically fit he is returned to his former combat organization. If not, he must be retrained and reassigned to a job within his capabilities. In most cases, the limited service hospital returnee can be utilized in some service unit in the rear areas. Such reassignment permits some able-bodied, physically fit service troop soldier to be released, briefly retrained as an Infantryman, and then reassigned to an Infantry unit.

Whenever possible within the re-

placement system the hospital returnees and the new green replacements awaiting forwarding are separated at all times. Bluntly, this amounts to a segregation policy which is justified for several reasons. The returnee requires a great deal of physical conditioning after his prolonged period of hospitalization. Also, he frequently needs complete reequipping due to loss and turn-in of his gear. Then, too, the odds are extremely good that he has become separated from his personnel records while being hospitalized and will require considerable administrative services. All of this additional processing can be expedited if returnees are grouped together separate from new replacements in some unit within the replacement depot.

Another important point further substantiates the segregation policy. Past experience proves that the returning combat hospital returnee frequently enjoys spinning yarns of his fighting experiences, either true or imaginary, to the new replacements when segregation is not employed. Frequently these tales reach the proportion of horror stories emotionally upsetting to the new green youngster about to enter combat for the first time. To avoid this pitfall as well as to permit more efficient administrative processing of the hospital returnee, it is believed best to segregate the new replacements from the veteran while in the replacement installations.

Under certain circumstances retrained personnel (or "retreads" in the vocabulary of the soldier) from within the theater may provide considerable numbers of replacements to the field army replacement depot for distribution to our Infantry units. Retrained personnel may come from inactivated units within the theater; they may be troops rendered surplus from changes of T/O's, or they may be general service enlisted personnel released from rear area jobs by the use of the limited service hospital returnees previously mentioned.

Our personnel policies must include the use of limited service men whenever possible to get the maximum use of our available physically fit manpower in the combat area.

Towards the end of World War II the army had overproduced on anti-aircraft artillerymen. This, coupled with a decrease of enemy air, created a surplus of AAA men. Likewise the Air Corps, then part of the Army, had surplus high-grade manpower. At the same time the Infantry units were understrength. Appreciable numbers of these personnel were actually retrained within the theaters of operations in the skills of the Infantry and then assigned to front-line units. This retraining and reassignment is a duty of the replacement depots.

In any large scale warfare in the future we will be hard put to produce the total numbers of soldiers needed for the successful prosecution of a global war. The procedures of World War II were not ideal solutions but were expedients designed to assist the Infantry in its continual struggle to maintain strength for combat efficiency.

We cannot belittle the retraining efforts of the replacement system in an active theater of operations.

In the past war, the Mediterranean Theater's replacement and training command successfully retrained some 15,000 service troops as Infantrymen in addition to retraining men in other related fields. In the ETO, by "VE Day," three replacement depots were retraining general duty service force and air corps personnel as combat Infantrymen. The capacity of these three depots totalled 40,000 men for a six-week training cycle.

The field army replacement depot forwards replacements to all units of the field army, in accordance with approved requisitions submitted by the requesting unit. The division periodically submits consolidated personnel requisitions to the army headquarters listing personnel shortages by branch, MOS, and grade. These are actual existing shortages. The field army approves personnel requisitions for all units based on the availability of replacements to the army as well as the plans for the future tactical employment of the requesting divisions.

After approval, the requisition is forwarded to the field army replacement depot for action. The replacement depot commander moves the proper numbers of replacements, in packet groupings whenever possible, from the stockage battalions to the appropriate forward replacement battalion which serves the corps of the requisitioning division. The forward replacement battalion completes a minimum of processing and releases the replacements directly to the requesting division. Guide personnel from the division replacement company, using division transportation, receive these men and their records at the forward replacement battalion.

At that instant, when the division representative accepts a replacement group at the forward replacement battalion, the replacements become a division responsibility. It is *not* when the truck convoy slides over the invisible division rear boundary . . . *nor* when the convoy arrives in the division replacement company area . . . when those new lads hop up the tail gates of those "six by's" they are the division's responsibility; lock, stock and barrel.

When those green kids scramble into those trucks they are perhaps unknowingly participating in a "graduation" ceremony. They are graduating into the real thing—their initial assignment in their limited military career of perhaps 17 weeks total, to a real, genuine, tactical *COMBAT* outfit. The replacement is no longer an IRTC recruit, a packet number, or an "umpteenth repple depple denizen" . . . he is an honest-to-goodness potential combat Infantryman in a *real* fighting outfit . . . he is no longer a "boy" but is about to become a full-grown "man" in short order. He is full of questions and thoughts about his new outfit. He wants to be assured that it is a good one.

Remember that the first impression of a division is made in the minds of the replacement at this time. The appearance and conditions of the division transportation, the attitudes and appearance of the truck drivers and guide personnel will all be noted by the new man. These impressions will convey to him an unspoken answer

to the question foremost in his mind, "Am I joining a *good* outfit?" If it is raining or snowing and the trucks are without tarpaulins he will not gain a favorable impression; if the truck drivers are unkempt and take delight in "pushing" the men around, the division's "Hooper rating" will fall to a great degree before we even have an opportunity to practice any formal orientation. Again, if the replacements are marched excessive distances with their heavy barracks bags we create a negative impression . . . all of these small points may seem minor. However, they are big items to the new impressionable and sometimes emotional replacements about to face combat for the first time.

An Infantry commander has to make these fuzzy-cheeked youngsters feel that they have joined the *best* outfit in the whole U. S. Army! He must make them feel that they are wanted; make them feel they are part of the team right from the start and are vitally needed. Selfishly, our own battle success largely depends on the performance of these new replacements. It is a challenge to leadership and ability as a commander to integrate them properly into an outfit. That sizeable job of integration and indoctrination begins right at the replacement battalion and there is but a minimum of time to do it.

Replacements go from the forward replacement battalion to the division replacement company for a program of orientation, indoctrination, training, and processing. The division replacement company, organic to the Infantry, Airborne and Armored divisions, fills a need that has always existed within a division . . . a place to properly receive replacements for processing to insure them an orderly entry into combat.

The organization of the company under T/O&E 20-7N is relatively simple. (See Figure 3.) It has a company headquarters and four replacement platoons. In the permanent party of this company there are six officers, one warrant officer and thirty-one enlisted men. It receives, administers, and trains replacements pending assignment to units of the division. Its rated capacity is four hundred replacements — one hundred new men per platoon.

During combat, the division replacement company is located in the division rear, in or near the division administration center. This location enables the company to accomplish its mission and also places it near the division supply installations. It also permits supervision and liaison by the division adjutant general and allows close contact with the various personnel sections of the major units of the division which are located in the administration center. The adjutant general is responsible for the supervision of the replacement company as he is actually on the ground in the rear area and the scope of his staff duties are closely related to the administrative processing of the replacements.

The permanent party, or "cadre," of the replacement company should all be combat-experienced personnel selected from the regiments of the division. This is sound because an extremely high percentage of replacements will be Infantrymen destined for these regiments to balance the combat casual-

ties. Manning the cadre with Infantrymen who have been through the mill affords a means of employing deserving battle-weary personnel on a rotational basis from the regiments. Using our own com-

Formal orientation of the new replacements begins immediately upon the arrival of the truck convoy in the replacement company area. As soon as the new men have detrucked tell them where they are

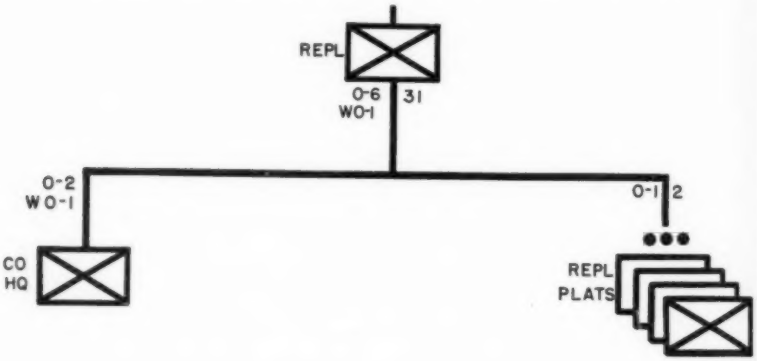

Figure 3. Division replacement company.

bat-experienced personnel in these jobs insures a competent source of vital battle techniques or "know-how" for the replacements being processed through the company. Each regiment should strive to furnish its best men for this duty for these cadremen become "salesmen" for their particular regiment. Once the new replacements are informed of their assignments to a particular regiment, it can be expected that they will flood the cadremen from that particular unit with a bushelful of questions. Good cadremen furnished by the regiments help the new men receive a favorable impression of their new-outfit-to-be.

located, how long they may expect to remain in the replacement company, the purpose of the stay there, what processing will take place, the messing arrangement, billeting plans, arrangements for mail . . . and even where the nearest latrine is located. Of prime importance, we must dispel their fears and suspicions that the enemy is lurking nearby just in rear of the nearest tent rope! These new men are apt to be keyed to high emotional pitch and inclined to be a bit skittish at this stage of the game.

Make the replacement as comfortable as conditions permit and give him the best there is to offer in the division area. More im-

portant, those buddy associations started back in the Zone of Interior during training days must be permitted to continue. Some "case hardened" individuals may refer to this treatment as "pampering." All right, call it what you will. . . . Let's "pamper" them then. It takes no practice to be uncomfortable. These lads are the soldiers who are destined to help us win the shooting war! We must make use of what little time there is left to us to make them feel they are part of "the team" right now . . . not the 30 days or several months from now, which the old timers callously refer to as "the proving period" for the newcomer.

Replacements remain in the division replacement company for a *minimum* period of three days. Because some staff officers often compute that period of time with exceedingly sharp pencils, it would be well to pin that period of time down to a minimum of 72 hours. It takes at least that long to properly process and assign the new men within the division. Some divisions in Korea are retaining replacements within the division replacement companies for as much as seven days to insure the maximum results, particularly from the training aspects, before releasing them to the regiments.

In addition to orientation during this last stop before combat, the replacement receives show-down inspections of clothing and equipment; he is indoctrinated in the history, traditions, and recent combat achievements of his division; and he receives limited training. G3 prescribes the scope of the training program. It should include the local characteristics of the enemy, tips on how to live in the field, vital combat techniques, and the local combat situation in the regiments.

A definite part of the indoctrination and orientation program within the replacement company should include sewing the division patch on the replacement's uniform and marking the helmet with appropriate insignia, if the division SOP and security regulations permit. The shoulder patch costs but a few cents to manufacture but at this point it is worth millions in *esprit* and morale value. It, above all else, is tangible evidence to the new replacement that he "is part of the team" and, in fact, "has made the grade."

Sometime during this period in the replacement company the division commander himself, or the assistant division commander, the chief of staff, or some key member of the division staff should greet and welcome the new men into the command. This continues the technique of making each new individual feel he is wanted and needed and aids in mentally conditioning him for combat.

Many members of the division special staff can assist in their particular fields or specialties to help the new replacement adjust to his new surroundings and get "squared away." The chaplain is an important man to look to for religious guidance, counsel and religious services. The special services officer can furnish recreational facilities, consistent with the situation. He also will see that post exchange supplies or the quartermaster gratuitous issue of tobacco and essentials is made available equitably to all men. Others who can assist

in the orientation will be, of course, the finance officer for last-minute financial service, the Information and Education Officer, and the division postal officer. The postal officer, a member of the adjutant general's section, should see to it that postal locator cards are promptly prepared for each new man to assist in forwarding his personal mail. American Red Cross personnel attached to the division can also play a big role in this orientation phase with their recreational facilities, clubmobiles, if available, and welfare work. All of these activities by the division special staff are coordinated and supervised by the division G1.

Now, at the same time the replacements are being processed in the replacement company the division adjutant general is busy making up the assignments of the new men to the various units of the division. Preliminary assignments are made from the Forms 20 of the replacements. The first concern is to equalize the strengths of the three regiments for a balanced sound tactical force. The AG keeps in mind the packet concept and makes assignments to capitalize on packet groupings. When it becomes necessary to divide packets the replacements are kept in as large groups of the original packets as is possible. After determining tentative assignments, the adjutant general obtains the concurrence of both the division G1 and G3 to insure that the assignments are consistent with the anticipated tactical employment of the regiments of the division.

After approval of the tentative assignments, the adjutant general calls in the personnel officers of the three regiments from the nearby division administration center to check over the Forms 20 of the groups of replacements to be assigned to their regiments. The personnel officers may actually interview certain replacements for critical assignments while they are being processed in the replacement company.

The personnel officers work out the assignments for the new replacements to *companies* of the regiments while the men are still being processed in the replacement company. If necessary, they consult the S1's of the regiments to see that the regimental commander's wishes are carried out as to assignment. This procedure saves time by eliminating delays and confusion in the regimental train bivouac area once the replacements are released to regiments. This also saves the regiment the time and effort of publishing a separate set of assignment orders covering the replacements' assignments to units of the regiment. These techniques, assignments as well as the inspections and orientation within the replacement company, are all designed to assist the Infantry commander in integrating these new men into the regiment. During combat the regiment is poorly equipped to accomplish any or all of this administrative processing and should *NOT* be required to perform it . . . it is the mission of the replacement company!

After the minimum stay of 72 hours within the replacement company the replacements are ready for release to their assigned regiments. The division G1 determines when replacements will be released to the regiments, basing his decision on the tactical situation. When-

ever possible, replacements are released to their regiment when it is in reserve or scheduled to be in reserve by the time replacements join it. This technique affords a brief, additional period of time in which the new replacement may "get his bearings" within his new company after he joins. We want to avoid the pitiful experiences of the past war where we found replacements being whisked from the replacement depot to the forward replacement battalion, to division, to regiment, through battalion to a front line company . . . all perhaps in the hours of darkness of one night and in the inevitable rain or snow. Many of these new men actually became casualties before they even knew the name of their platoon leader! We must give these new men a decent chance to get adjusted within their new units and to be mentally conditioned for that initial shock of close combat.

During combat, replacements are received from the division replacement company in the regimental service company area or, what is generally known as the regimental field trains bivouac area. Here the orientation procedures will also be continued consistent with the situation. Upon their arrival, the regimental commander himself or the executive officer should briefly welcome the new men with a few words of the history and achievements of the regiment. Consistent with existing security regulations, the S1 may distribute a short history of the regiment and other pertinent data on the battalions and unit commanders.

The stay of the replacements within the train's area is as brief as possible. Perhaps it will amount to only a few hours, for the regiment has no facilities to take care of a sizeable group of men. The S1 makes a brief check to insure that the replacements have the essential equipment for combat and also at this point the men tag and turn in their barracks bags and all other non-essential equipment for storage. A hot meal may be provided and ammunition issued at this time if required.

The release of replacements to the battalions depends on the tactical situation. Again, whenever possible, the new men should be received when the battalions are in a reserve status. The regimental S1 determines the best time of release and has the battalion S1's with sufficient guide personnel present in the train's area to receive their replacements and take them to the battalion areas.

The orientation of the new men continues within the battalions and companies consistent with the tactical situation. As a minimum, the battalion commander, the S1 and the company commanders should make every effort to give the new men as much information as possible on the situation, summarize the battalion's recent achievements, and tell the replacements just what is expected of them.

And so our new replacement faces combat for the first time. How well we have done our job in getting him set up for this experience will be reflected in his performance of his duty.

A program of orientation and indoctrination is essential in the proper integration of new replacements into the line. If such a program does not exist within your

division, regiment or battalion, the system of forwarding replacements initiated in the Zone of the Interior and carried forward overseas through the army replacement installations may be largely nullified and wasted.

Men entering combat for the first time are groping for something secure. The orientation and indoctrination will plant the seeds of self-respect and unit loyalty . . . and will speed along the development of a fighting combat Infantryman as well as mitigate the initial impact of close combat.

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". . . The Infantry is the spearhead of our effort as a Nation at war. The foxholes of the Infantry show the gains our armies make, and his courage marks our victories."

General Omar N. Bradley

75-MM RIFLE PLATOON IN KOREA

By CAPT PHIL R. GARN, Infantry

In most outfits during the early summer of 1950 there were many who shook their heads when the subject of recoilless rifles came up. Could they ever be employed successfully? They doubted it. Would the backblast, characteristic of the weapon, cause a lot of trouble — murderous counterfire? They were sure it would. Recoilless rifles a good idea? Maybe, but they'd have to see them prove themselves first.

Well, they did! The 75's proved themselves in Korea — made believers out of the skeptics — turned doubters into staunch advocates.

Used properly in combat, the 75's proved themselves time after time. It didn't take the rifle companies long to learn the value of this accurate hard-hitting weapon. The 75's are one of the best supporting weapons, both in the attack and defense, that the Infantry has. The backblast threat was soon forgotten as we developed our methods of employment.

I commanded the 75-mm Rifle Platoon, Company H, 23d Infantry, 2d Division. Fortunately this platoon had developed a high degree of enthusiasm for the weapon before leaving the States and had, by constant practice, become thoroughly familiar with it.

EARLY EMPLOYMENT

The platoon was first used in combat in Korea on 22 August 1950 at Tongmyongwon, about 8 miles north of Taegu. Our battalion defended a position on a line of hills. The 75-mm platoon was split into two sections: one section on the right flank and the other on the left flank of the battalion. Both sections were incorporated into the defensive positions of the front line rifle companies. The two guns of each section were placed to be mutually supporting.

This first action, incidentally, was the only time in eight months that all four 75's were used simultaneously. Our use of less than the whole platoon was not through choice; terrain conditions and shortages of personnel forced the decision. We found that it took about eight men to carry one gun over the Korean terrain. There simply wasn't enough manpower in the platoon to transport all four guns, plus ammunition, over that jumbled mass of real estate.

Our first targets at Tongmyongwon were bunched personnel and crew served weapons. One gunner spotted a machine gun firing. Range — about 1500 yards. Score — a direct hit with the second round. As

no other targets were in sight, the rifle was left aimed at the previous target. In about ten minutes another enemy machine gun was observed going into the same position. The nearby riflemen who had field glasses were treated to the sight of a machine gun being destroyed with the first round.

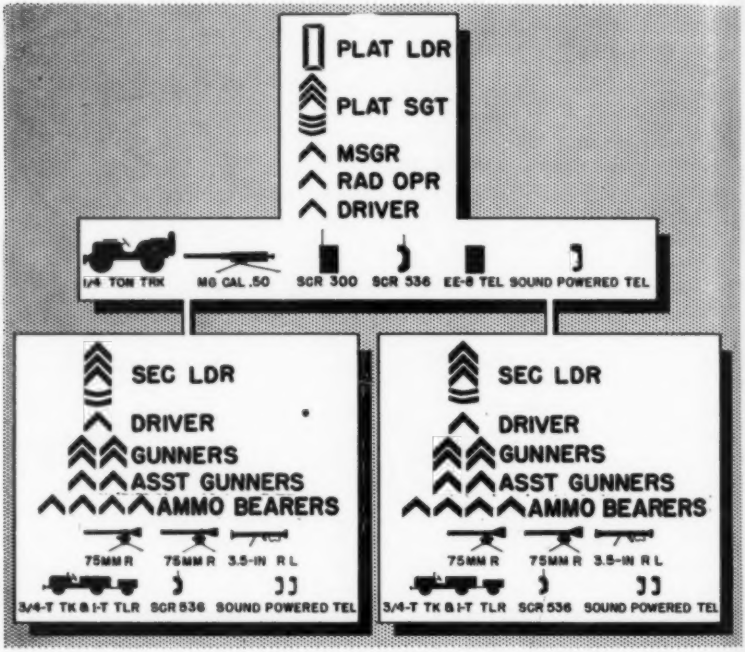

Figure 1. 75-mm rifle platoon: personnel, weapons, and transportation.

In considering the capabilities of the 75-mm platoon we can't stop with the 75 itself. There are other weapons in the platoon T/O and E — individual weapons and most particularly the .50 caliber machine gun. (See Figure 1.)

On the very first night in position we had occasion to use our .50. An enemy machine gun opened up on one of our positions. Rather than risk firing the 75's at night, with the accompanying backblast to reveal our positions, the .50 caliber MG joined in with the general fires of the front line. This combined fire silenced the enemy for the rest of the night.

In our first attack the 75's were used in a role that later became standard. Placed where they could observe the advancing troops — mission: to fire on targets of oppor-

tunity — the rifles fired over the heads of the rifle companies. (See Figure 2.) Delivered at the request of the rifle company commanders, these fires could be maintained until they were masked by the advancing riflemen. Then the weapons were displaced forward.

In this first attack the first section of 75's knocked out two machine guns — expending a total of three rounds for the job. The second section had equally good hunting for the three days of offensive action. They destroyed a mortar* that was very effectively firing on our artillery, and were credited with two enemy machine guns. This section also placed fire on known observation points located on the peaks of hills and ridges. Normal dispersion of mortar fire makes it extremely difficult to knock out pin-point targets located in such positions. The 75's did the job perfectly.

It was this attack that sold the battalion on the 75-mm recoilless rifle. From that time on my platoon was asked constantly to fire at any and all types of direct fire targets.

During this entire action the 75's received no enemy mortar or artillery fire. We think this was due to the enemy's belief that the backblasts were the explosions of his own rounds falling in our area.

IN THE DEFENSE

From 1 September until 15 September 1950 our battalion was engaged in the defense of the Naktong River. During this period we found that the best position for the 75's was behind and above the rifle elements. When we could not engage targets from these positions, we would bring the guns forward, fire on specific targets, and then take the rifles back a few yards behind a hill crest.

In this defensive position, fire from 75's often drew fire from enemy self-propelled guns and 47-mm antitank weapons. However, we lost no 75's due to this type of counterfire. One gun, which had been placed a short distance behind the front line while the crew acted as riflemen, was damaged by a mortar round.

The normal defensive firing by my platoon consisted of direct fire at 400 to 1950 yards range. We got accurate fire up to this last figure. Close-in targets usually were bunched personnel and automatic weapons; the distant targets were usually suspected observation posts and mortars caught while going into position. Within the limits of our effective range we were always able to take targets under direct fire before our mortars or artillery could adjust on the targets.

We used the 75's frequently to mark targets with white phosphorous for air strikes. This practice was extremely effective because of its speed and accuracy. However, to do this job successfully, the platoon's SCR 300 must be in the battalion net.

We encountered very little armor in Korea, but when we did we found that the 75 doesn't have the penetrating power of the 3.5-inch rocket launcher. The range and

*Observers of North Korean tactics state that the enemy frequently placed their mortars in exposed positions. This explains why direct fire 75's could hit mortars which we normally think of as firing from defilade at all times.

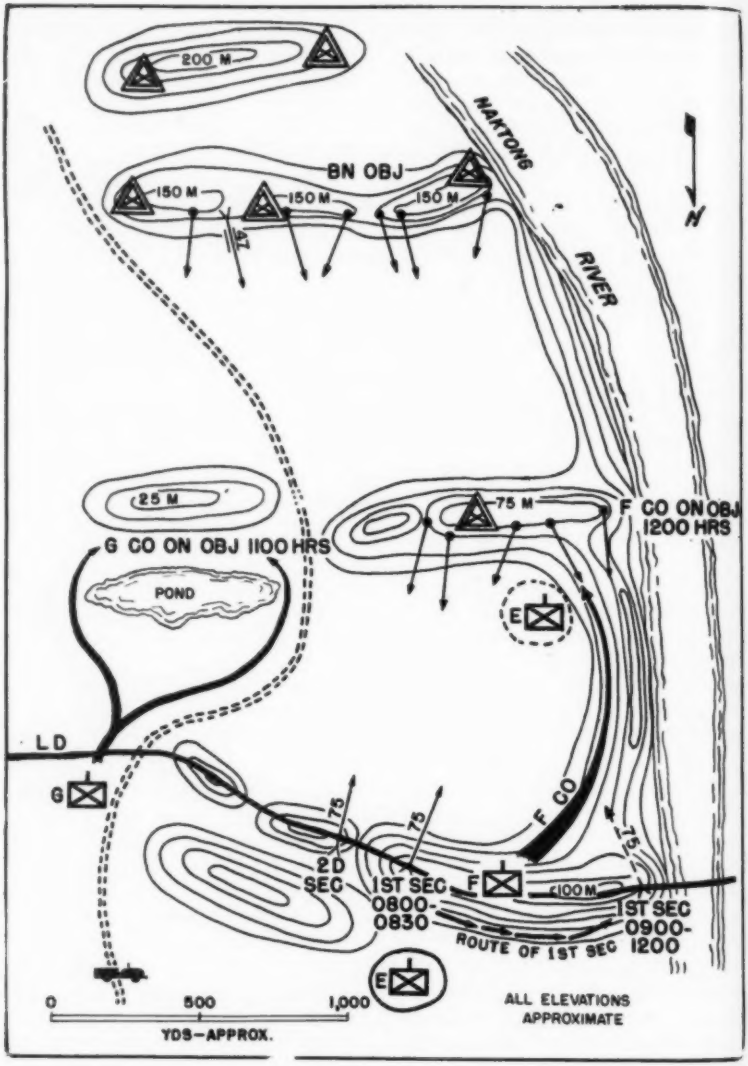

Figure 2. Initial dispositions of the rifle companies and the 75-mm platoon, plan of attack, and subsequent operations, 0800-1200. Observation posts shown are those of the enemy.

accuracy of the 75's allowed us to open fire at armor at ranges in excess of 1500 yards with fair results, but we preferred air strikes or artillery and tank fire for long range antitank work.

IN THE ATTACK

The 75 has what it takes in the attack — accuracy beyond small arms range and tremendous punch. Properly emplaced, the weapon can knock out crew-served weapons before our riflemen come under their fire.

As in the defense, we found that the best positions to support an attack were from 200 to 400 yards behind the supported rifle company, and at a greater elevation. The higher the better, as this permits overhead fire for a longer period of time. The second best position is on the flanks of the attacking unit.

In both positions you can observe the progress of the attack and deliver fire on targets of opportunity. Stay out of the rifle platoon positions — if they receive fire, you are not affected; if you are fired on, the rifle platoon won't be affected.

Always prepare alternate positions.

In selecting positions remember that the farther you are from your ammunition vehicles, the fewer targets you can engage. Ammunition supply is a real problem.

In this respect, if mortars and artillery are available, don't fire at their targets. A good rule is: Shoot only what you can actually see! You can't afford to waste ammunition. It takes an entire platoon to carry one gun and eight rounds of ammunition cross country if they are to stay up with the attacking force. And this only if the distance is not too great. (Remember, I'm writing about Korean terrain.) Keep moving your ammunition supply forward. In some instances it took as long as three hours to bring up 10 additional rounds of ammunition during an attack.

In some very mountainous terrain we carried only the .50 caliber in the attack. This allowed us to fire at almost the same ranges as with the 75 plus being able to deliver many more rounds of ammunition on the target. However, the .50 certainly lacks the punch of the 75. Using the .50's in the attack is an unusual procedure but sometimes the mission and terrain will demand it.

ACCURACY

The 75 itself is very accurate, but its ability to hit targets depends on the ability of the gunner to estimate ranges. If he is good at it, he should be able to zero-in on targets with two rounds. After this he should be able to score a one-round direct hit on any subsequent target within the same general area of the original target. To do this, however, the weapon must be boresighted.

The 75-mm platoon leader should constantly stress boresighting. During the early days of the Naktong defense we missed good targets because the sights had been knocked out of line while the gun was being carried into position. We soon made it SOP to boresight every time we moved any distance at all, time permitting. Always boresight before taking the 75's forward in an attack. A good crew can boresight in 5 minutes; it really pays off.

INDIRECT FIRE

The big drawback to using the 75's for indirect fire is the slow rate of loading and firing the weapon. Second, you don't have the basic load of ammunition that it takes to fire indirect fire for any length of time. The third drawback is the very slow method of cross-leveling the piece after each round has been fired.* The screw-type levels attached to the tripod legs make cross-leveling too slow. And the weapon *must* be leveled after each round for accurate fire. We felt that the tripod should be modified so that cross-leveling can be accomplished in the upper part of the mount rather than in the legs.

Although our platoon did not favor using indirect fire, another battalion in our regiment used all four guns in indirect battery firing to plug gaps in final protective lines. They found it worked out fairly well.**

NIGHT FIRING

The 75 doesn't lend itself to night firing. The sights are very difficult to use in poor visibility, and the backblast flash is extremely bright. At night our platoon doubled in brass as riflemen in the line or around the gun positions.

We often used the .50 caliber MG for night firing; on occasion we used both .50's of the heavy weapons company. We found a combination of 3.5-inch rocket launchers and .50 caliber MG's to be an ideal night road block — when protected by riflemen.

TRANSPORTATION AND LOADS

In normal situations we carried our 75's on the assigned organic transportation. When operating over extremely narrow roads we used a jeep to carry one gun and about 15 rounds of ammunition.

Another battalion swapped the ¾-ton trucks of the 75 platoon for the jeeps of the 81-mm mortar platoon. This enabled the mortar platoon to carry more ammunition. Using the jeeps the 75 platoon was still able to carry the basic load of ammunition. The 75's could be mounted on the dash board machine gun mount or the antiaircraft mount.

We carried our 75's and the ground mount for the .50 caliber MG in the bodies of our ¾-ton trucks, with the .50 caliber MG mounted on the antiaircraft mount. Always load your 75's in the vehicles in such a way that they will not be jarred or bounced about. The sight brackets are knocked out of line very easily.

Put some of each of the three types of ammunition in each trailer, and load them so that any of the three types is readily available. We found that ammunition could be loaded much more easily by taking it out of the wooden packing

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*The Infantry School does not believe it essential to go through the time-consuming process of cross-levelling described by the author in order to deliver indirect fire accurately. The School no longer includes this step in the technique of indirect fire. However, it is essential that care be used in mounting the tripod so that the dial is as level as possible, and in this respect troops may have experienced difficulty in the Korean terrain.

**The Infantry School believes the 75-mm rifle should be used in indirect fire only under exceptional circumstances.

boxes. There is little danger of damage to the rounds if the ammunition is loaded properly. Balance the load in the trailer. (Two men should be able to lift and hitch the trailer to the truck.) When the trailer is unhitched make sure that the tongue end is up so that water will run out quickly.

You should carry about eight pack boards for hauling ammunition. One man can carry only two rounds if the distance is great.

Don't let your men carry a lot of useless equipment on the vehicles and trailers. It interferes with rapid handling of the guns and ammunition.

MECHANICAL FUNCTIONING

The 75-mm rifle works well under all conditions. Heat, cold, rain, and snow have little effect on it. The most common malfunction we encountered was a burred rotating band. If the burrs were not removed it was difficult to load the round. One of your ammunition bearers in each section should carry a small file for removing these burrs.

While not a serious source of trouble, firing pins do break occasionally. Always keep extra firing pins handy.

The weapon does become extremely hot after rapid and prolonged fire, but no trouble was experienced with the ammunition due to this heat.

In cold weather keep all moving parts dry. The gun functions very well in cold weather. In January 1951 we fired at 25 degrees below zero. In such temperatures the first round would be a little short in range, but the second round would be warmed in the breech and fire correctly.

In rain and snow it is best to leave the round in its cardboard container until you are ready to use it. However, the ammunition has a water-proof coating which protects it for short periods of time.

On rare occasions a residue of burnt powder is left in the bore after firing a round. This may prevent the next round from seating properly. Keep a bore brush handy for use in such cases.

A FEW OTHER TIPS

Train all members of the platoon to fire not only the 75, but the 3.5-inch rocket launcher, the .50 caliber machine gun, and the light and heavy .30 caliber machine guns. The more weapons your men can handle efficiently, the more valuable you are to your battalion. And train as many of your men as drivers as you can. Make certain that everyone can lay and splice wire. At least half the platoon should be able to operate and calibrate the SCR-300.

We depended much more on wire than on radio in Korea. Have your section tie into the supported company and the heavy weapons company wire nets whenever possible. You can't have too much communication. Lay double wire lines whenever you have the time.

The gunner's ability to estimate ranges is extremely important. It should not take him more than three rounds *at the most* to hit any direct fire target within range.

When the 75 is being moved to a new position to fire at a target, bring up the gunner ahead of the gun and make certain that he has

identified the target. Have him stay in position while the gun is brought up. This cuts delay in firing the first round and gives the gunner more time for range estimation.

A TYPICAL ATTACK

During the drive to break out of the Pusan perimeter our battalion was engaged in an all-day attack that well illustrates the use of the 75's in offensive combat.

The morning of the operation found us ready to attack south with the steep banks of the Naktong as our right boundary. Figure 2 shows the initial dispositions of the 75's and the rifle companies at the time of the attack.

The initial set-up for the 75's is shown in Figure 2. (Remember that only one 75-mm rifle was being used by a section.) The second section was placed to the rear of the line of departure in a position where it could fire in general support of the battalion. The first section was in direct support of F Company, located right on the line of departure.

Alternate positions were located for both sections — this is very important — and both sections were mutually supporting. Communication between sections was by SCR-536.

The second section gave the battalion excellent long range supporting fires during the first stage of the attack. Most of its targets were on the battalion objective, and points that experience had taught us were likely OP's and antitank gun emplacements.

The first section had prepared two positions from which to cover the advance of F Company. Since the line of departure in F Company's zone was higher than the F Company objective, it was decided that this section would fire over the heads of the friendly troops until they masked the fire of the recoilless rifle.

After the preparatory fires — provided by artillery, 4.2-inch, and 81-mm mortars — had been delivered and F Company had moved out along a hog-back in the right of its zone, it was an easy matter for the first section to spot and fire on crew-served weapons when they commenced firing on F Company. Contact with F Company was maintained by SCR-300 over the battalion command net.

Despite scoring what appeared to be direct hits on machine gun emplacements, the first section was surprised to see fire continuing to come from the same emplacements. Quickly changing from impact to delay fuze ammunition, the section resumed fire and obtained much better results. After the F Company objective was seized, it was found the enemy weapons emplacements were actually tunnels extending back through the ridge to the reverse slope. This type of fortification protected the weapons from any type of impact detonation except direct frontal hits.

During this phase of the attack the first section was credited with knocking out three machine guns using this type of ammunition, eliminating both the guns and the crews! Incidentally, the recoilless rifle crews can spot crew-served weapons much easier than the attacking rifle companies. The 75's have the advantage of elevation, binoculars, and not having to observe while marching over rough terrain.

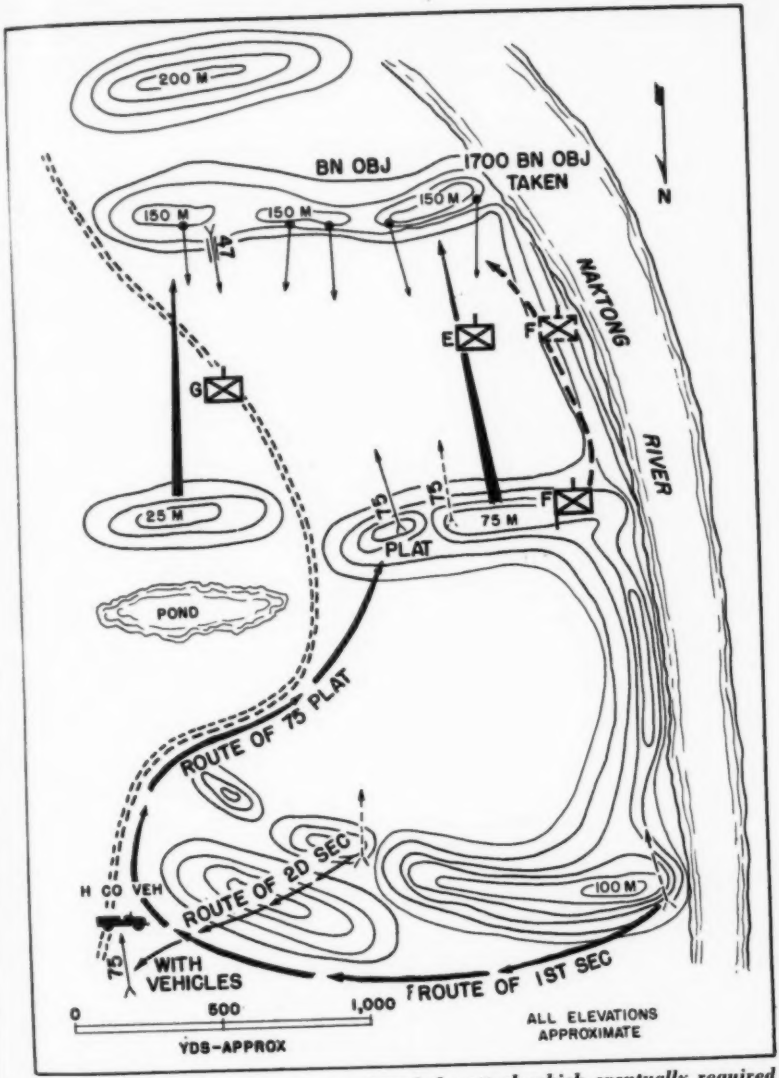

Figure 3. E and G companies continued the attack which eventually required committing F Company on the right. The 75-mm rifle platoon carrying only one gun, moved forward to the position shown, from which it supported this phase of the attack. The second gun and vehicles were not taken forward.

Around 0830 hours the first section began to receive small arms fire and moved to its alternate position to the right where it resumed firing at about 0900 hours.

After F Company had taken its objective, E Company passed through F Company and began its attack on the right half of the battalion objective. G Company, which had secured its initial objective without much difficulty, also continued its attack toward the battalion objective. (See Figure 3.)

When the first section's fires were masked, its gun was moved to the road in the left of the battalion zone and forward to the position shown. The second section gun was left in the battalion rear during the second phase of the attack. Why? Because it took the entire platoon to carry the first section gun and ammunition forward to the new position. In this new position the now one-gun 75 platoon was placed in a general support role and was able to fire in the entire battalion zone. In addition to firing at probable OP's and weapons emplacements, the platoon fired marking rounds for air strikes on Hill 200 in a highly successful manner.

During this attack, which lasted until dark, the 75-mm platoon fired 80 rounds of ammunition.

Because of the strength of the enemy, who had dug in on the battalion objective, it was necessary eventually to use all three rifle companies, supported by antiaircraft automatic weapons, tanks, mortars, artillery, and air before the objective was taken. However, the mission was accomplished — and on time. A lot of credit went to the excellent support given by the 75's.

Sold on 75's? The men of the 2d Battalion, 23d Infantry are. And I believe that any unit that employs them intelligently will be just as enthusiastic about their hard hitting, accurate, mobile firepower.

PHOTO FIRING INFANTRY MORTARS

By CWO HERBERT J. USCHOLD

Mortar observers are best trained on a mortar range using service ammunition. Unfortunately, range time and ammunition supply frequently are insufficient for the purpose.

How then can you teach your men to be good forward observers? — Puffboard? Good, but it requires elaborate equipment. — Training Shell Range? Excellent, but it requires suitable terrain, a good bit of equipment, and several trained assistant instructors.

A new method, pioneered at The Artillery School, and, with some variations, now in use at The Infantry School, allows you to train observers indoors, with little equipment other than an overhead type daylight projector; a set of transparencies of terrain, of a field glass reticle, and of mortar bursts; a supply of clear plastic or glass sheets; and a grease pencil.

Roughly this is how the idea works.

Initially a terrain transparency representing the FO's assigned sector of fire is shown on the projector screen. Some easily defined point in the picture is designated the base point. With the observer-target azimuth and the range given, the student formulates an initial fire request.

The instructor, following the information given in the request, superimposes an image of a mortar burst and reticle on the terrain picture. This is sensed by the student, and subsequent requests and bursts follow until the student is able to call for fire for effect, at which time an image of platoon bursts is shown, ending the prob-

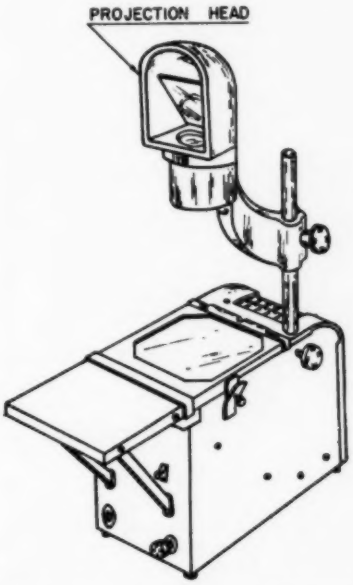

Figure 1. This is the type projector used in this method of teaching forward observer techniques.

lem or requiring further adjustment of fire.

The system does not permit range estimation but it does show angular deviation, and by placing bursts above or below a reference line, the instructor can indicate rounds falling at ranges greater or less than the range to the target.

This is the equipment needed:

A daylight type projector. (See Figure 1.) Two commercial versions are the Vu-graph and the Visual Cast. Projecting and enlarging picture transparencies, these machines can be used in rooms well-enough lighted to permit students to read and take notes. They have an additional advantage in that they are used at the front of the classroom, permitting the instructor to operate them while facing the class.*

Terrain transparencies. (See Figure 2.) While the subject can be taught using only one picture, variety can be added by preparing several transparencies of several different pieces of terrain.

Binocular reticle image (See Figure 3.)

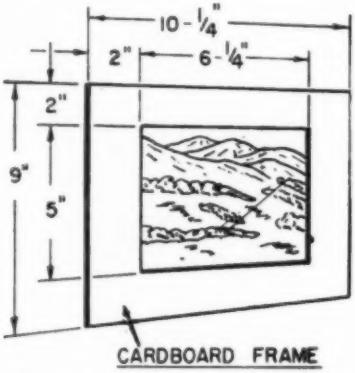

Figure 2. Terrain transparency. These are of two types: (1) Positive photographic transparencies; (2) Painted transparencies in which the terrain is painted with transparent water colors on the emulsion side of clear, exposed film. The transparency is cemented, around its edges, to the cardboard frame.

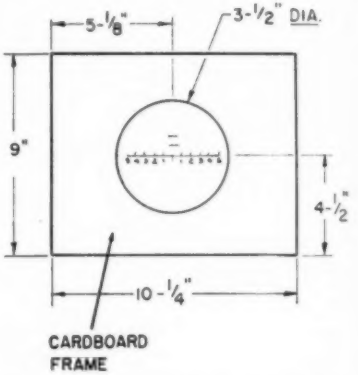

Figure 3. Binocular reticle image. The reticle is drawn with black ink on cellophane which is then cemented over the circular hole cut in the cardboard frame.

Images of mortar bursts. (See Figures 4 and 5.) The pictures shown are all that are needed for instruction. Note (Figure 5) that the set A, B, C, duplicates set E, F, G, except for size. The first set, having smaller bursts, is used to

*It is difficult for the instructor to change slides when the projector light is turned off. However, if it remains lighted, the changing process, projected on the screen, is distracting to students. This problem can be solved by leaving the light on and covering the opening in the projection head. The Infantry School does this by dropping a cardboard flap, hinged to the head by cellulose tape, over the opening in the head, while changing slides. When slides are ready for showing, the flap is simply turned back and the slide is projected.

indicate bursts at long range; the larger bursts are for shorter ranges. Figure 4 shows this image drawn on a plastic or glass plate 6" x 6".

Grease pencil (china marking) and several sheets of thin plastic (clear or frosted) 7" x 7" are the only remaining items needed to carry on your forward observation instruction. The pencil is used to write observers' fire requests on the plastic or glass sheets, to draw diagrams, and to write instructions which are then shown on the screen. Figure 6, a diagram showing the relationship between reference point, target, etc., is an example of the on-the-spot slide making that is highly useful to an instructor.

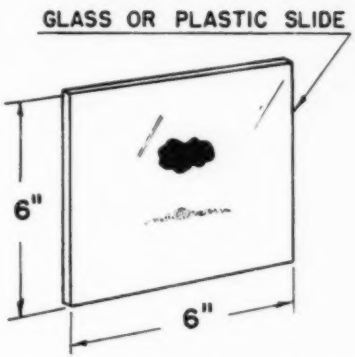

Figure 4. Mortar burst images are made by drawing with India ink or black paint on thick plastic sheets or thin glass.

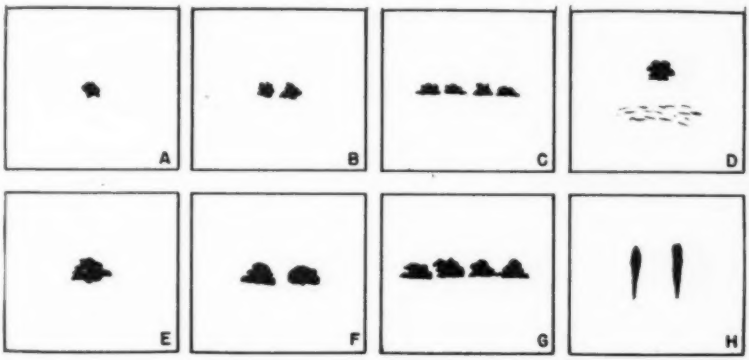

Figure 5. Recommended images of mortar bursts.

A. Impact burst, shell HE; fuze, quick; single mortar; long range.

B. Impact bursts, shell HE; fuze, quick; section fire; long range.

C. Impact bursts, shell HE; fuze, quick; platoon fire; long range.

D. Airburst, shell HE; fuze, time; single mortar.

E. Impact burst, shell HE; fuze quick; single mortar; shorter range than burst shown in A.

F. Impact bursts, shell HE; fuze, quick; section fire; shorter range than bursts shown in B.

G. Impact bursts, shell HE; fuze quick; platoon fire; shorter range than bursts shown in C.

H. Delay bursts, shell HE; fuze delay; section fire.

To start your forward observer instruction, project the terrain transparency to be used during the period of instruction, pointing out

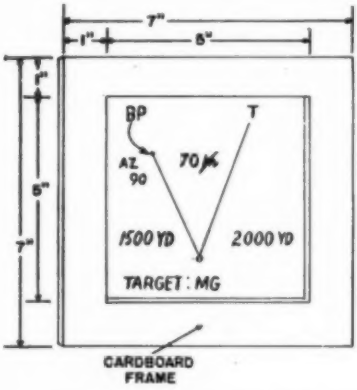

Figure 6. Transparency used to show the relationship between reference point, observer, and target. To this may be added the type of target to be fired on.

important features. Next, superimpose the binocular reticle slide on the terrain picture. Now that the reticle appears on the screen, tell your class that the horizontal line will be a range reference line; that bursts above the line will be sensed "over" for range, and those below the line "short." Any round bursting on the line but well to the left or right of the target is sensed "doubtful" for range. (See Figure 7.)

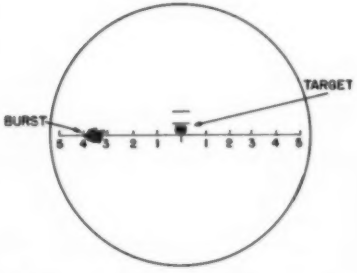

Figure 7. A burst along the horizontal line of the reticle, well to the right or left of the target, is sensed "doubtful" for range.

Mention that during the adjustment of a normal bracketing mission no attempt is made to estimate the range difference between the bursts and the target. Explain that range sensings are combined with deviation sensings. (See Figure 8.)

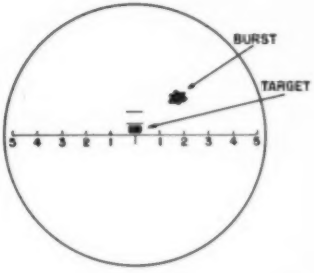

Figure 8. The burst shown here would be sensed, "Over, 20 right," indicating that the round has fallen beyond and 20 mils to the right of the target.

After students have formulated an initial fire request, a single mortar burst is superimposed over the combined picture of terrain and reticle. It is best to use a single mortar burst, fuze quick, to start with. As students become more proficient, other bursts, representing time fire and other fuzings, can be used.

FIRING PROBLEM

The following example shows how to conduct a class through a complete base point registration followed by a shifting of fire to a target of opportunity.

Point out to students that:

a. The terrain transparency projected on the screen represents the forward observer's sector of fire.

b. The lone tree (or other easily defined point) has been designated as base point.

c. The observer-target azimuth is 220 mils (or any other selected azimuth), and the observer - target range is 1200 yards.

Note: In placing your reticle image over the terrain picture the zero of the horizontal line is placed at the base of the target, just as is the zero point of an observer's binocular reticle.

Figure 9. Initial fire request written on slide with a grease pencil.

Then tell the class, "Based on the information you see on the screen and that given you orally, formulate your initial fire request." The time allowed for completion of the request depends on the amount of training the students have had previously.

After calling on several students to give their solutions (fire requests) flash on the screen the correct request (see Figure 9), which you or an assistant have printed on a blank slide with grease pencil. (The transparency and reticle slides should be removed from the projector while showing your "solution" slide.)

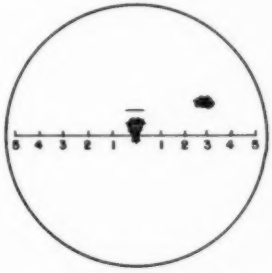

Figure 10. Round No. 1. The sensing for this burst is "Over, 30 right."

While discussing this initial fire request, have your assistant again set up the terrain and reticle slides, with a burst slide added as indicated in Figure 10.

Now flash the burst on the screen for from 1½ to 5 seconds, depending on the status of training. Call for sensings.

A sample discussion goes as follows:

"What is your sensing for Round No. 1 — Sgt McCoy?"

"Sir, 'Over, 30 right'."

"Do you agree with Sgt McCoy — Sgt Wilson?"

"Yes, sir."

"What then is your subsequent correction, based on your sensing — Sgt McCoy?"

"Left 35, Drop 200."

"How did you arrive at that correction?"

"Well, sir, my observer-target range is 1200 yards and my round burst over, 30 mils right. By applying the mil relation $W = RM$, I multiplied 30 mils times the observer-target range expressed in thousands of yards (1.2 for 1200 yards range) and got $1.2 \times 30 = 36$. Taking that to the nearest five yards I have 35. My correction for deviation then is 'Left 35.' Since the round did not strike the target, but burst beyond it, I know that I must continue the adjustment using the bracketing procedure. My observer-target range being between 1000 and 2000 yards, I know that I must make an initial range change of at least 200 yards. I may make a greater change if I think it necessary. In this case I believe a 200-yard range change will establish my bracket. Therefore, I sent the correction 'Left 35, Drop 200' to the Fire Direction Center."

And Sgt McCoy is correct both as to method and mathematics.

While this discussion is in progress the assistant instructor moves the burst as indicated in Figure 11. To create additional realism during the conduct of the problem, the assistant may call "On the way" as would be done in an actual firing problem.

Again a discussion ensues. The instructor asks, "What is your sensing for Round No. 2 — Private Roberts?"

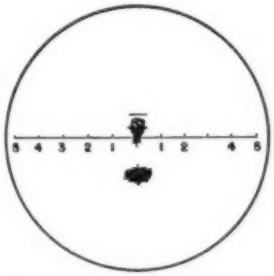

Figure 11. Round No. 2. The sensing is "Short, line."

"Sir, I sense the round as 'Short, line'."

"Why?"

"'Short,' because the burst is short of the target, sir, and 'Line,' because the round burst on the observer-target line."

"Right. And what is your correction?"

"Add 100, sir."

"Do you agree with the correction — Corporal Raymond?"

"Yes, sir. Because Round No. 2 of this adjustment has established our 200-yard bracket and, following bracketing procedure, I must not attempt to determine how many yards this burst is short of the target, but will immediately split my established bracket. In this case I add 100."

Again the assistant has set up another burst, this time as indicated in Figure 12. Discussion with the class develops the fact that the correct sensing is "Doubtful, 25

left." and that the proper correction is "Right 30, Repeat Range."

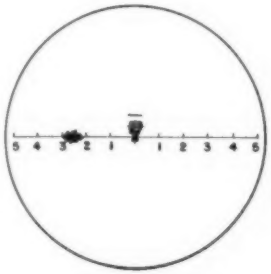

Figure 12. Round No. 3. The sensing is "Doubtful, 25 left."

The assistant sets up Round No. 4 as shown in Figure 13. Here the sensing is "Short, 10 right" and the correction "Left 10, add 50."

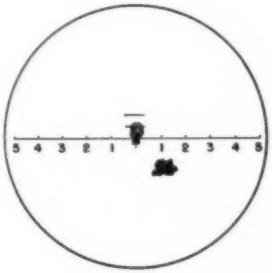

Figure 13. Round No. 4. The sensing is, "Short, 10 right."

Now that the class is getting the bursts nearer the target, interest builds just as it does on an actual mortar range. To continue the adjustment, the assistant sets up Round No. 5. (See Figure 14.)

Here the sensing is "Over, Line" and the correction, "Drop 25, Cease fire, base point registration complete." Since a 50-yard bracket has been established and a 25 yard range change is the smallest that

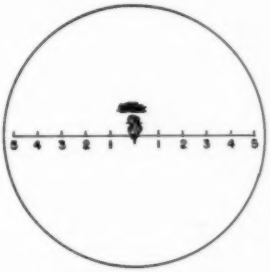

Figure 14. Round No. 5. The sensing is, "Over, line."

can be applied to a mortar, another round is not fired. The correct range to the base point has been established and the fire direction center can be presumed to have the correct location of the base point plotted on the Observed Firing Chart.

To shift to a new target, using the overhead projector, it is best to indicate the location of the new target using a grease pencilled slide similar to that in Figure 15.

Flash the diagram on the screen for a period long enough to permit the class to assimilate its information and require each student to formulate his initial fire request. Call on several students for their answers and then show the solution. (See Figure 16.) This combines the original diagram with added information derived from the observer's calculations and the fire request itself.

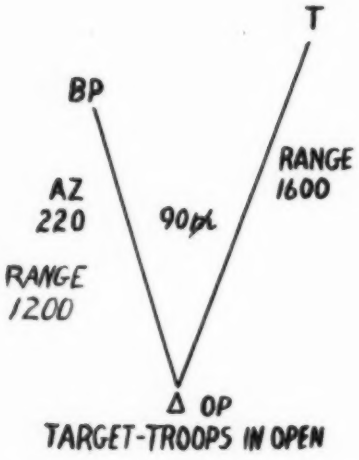

Figure 15. Slide used for shift to a new target. It contains all the information needed to formulate a new fire request.

Following discussion of the solution the same procedure is gone through as for base point registration.

The examples here have been those used in training 81-mm and 4.2-inch mortar observers. With slight modifications in technique, photo-firing (using the same equipment) can be adapted to train observers for 60-mm mortars.

The system is a time-saver, can be conducted indoors making it useful in all kinds of weather, requires a minimum of equipment, and best of all, holds the student's interest from beginning to end — an important consideration whenever a substitute is used for the real thing in conducting any type of military training.

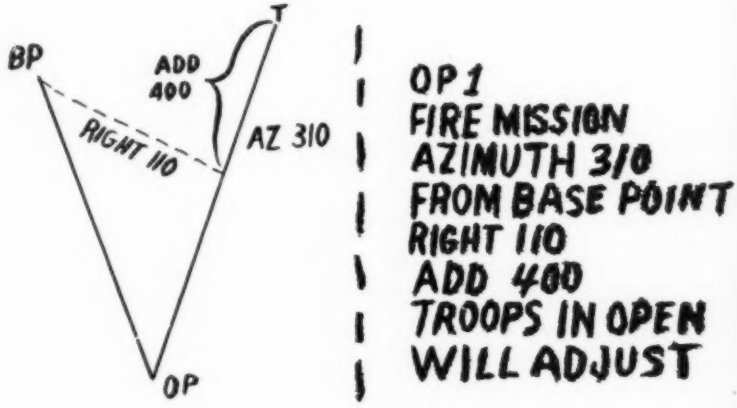

Figure 16. Solution slide for shift to a new target. Prepared with grease pencil, this slide shows the diagram originally projected in Figure 15, plus information derived from the observer's calculations, and, on the right, the initial fire request.

PAY AND ALLOWANCES

By MAJOR EDGAR N. MILLINGTON, Infantry

Here is an article that doesn't need a flashy title! PAY! What other word arouses as much interest? We use it, enjoy it, and hope for more. And more important to you, if you are an officer — so do your men.

Pay is a great morale factor. But

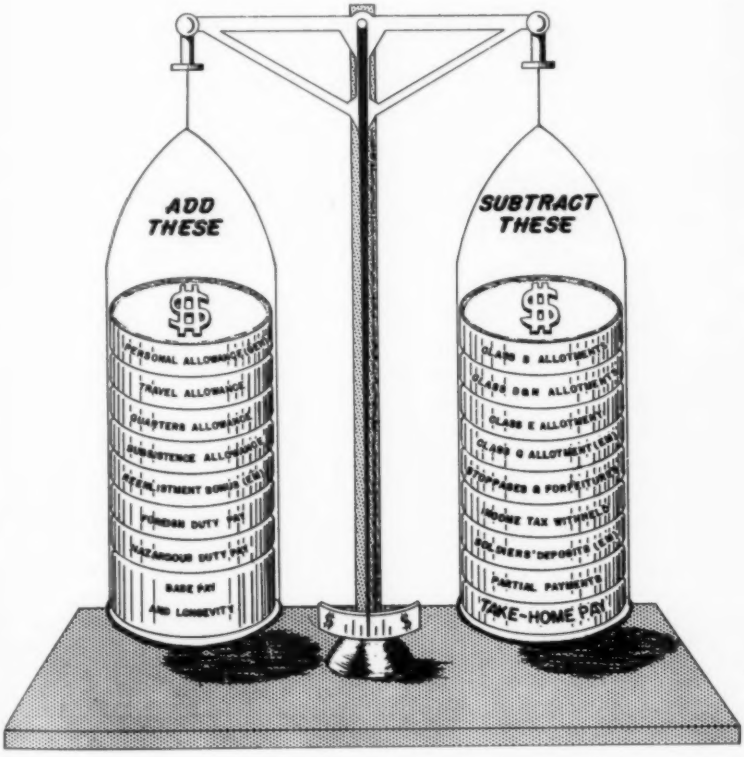

Figure 1. How Your Pay Balances.

it loses much of its morale effect if there are delays or mistakes in payment. Your men want to know what is due them, when it's due, and certainly want to be paid on time.

Many different considerations affect what a soldier has coming to him on payday — his allotments, previous partial payments, forfeitures, and of course his base pay. (See Figure 1.)

As the soldier's commander you need to know the answers to all of his questions on pay. Therefore you should become thoroughly familiar with our present pay system. As an officer, also, you are concerned with methods of payment. This article presents a short study of army pay principles and describes the duties and functions of a Class A Agent Officer. You will find during your service that many posts have local ground rules on pay and allowances. It is not the intent of this article to cover such ground rules; rather, it is intended that only general regulations and procedures be outlined.

The present system of pay for officers and enlisted personnel came into effect on 1 July 1949 when a new pay regulation, SR 35-2000-1, was published. Also in October 1949 the Career Compensation Act was enacted by Congress. This very important act raised our pay somewhat and made some changes in the periodic raises earned by increasing length of service.

The objectives of the pay regulations are:

Prompt and correct payment

Efficient registration and collection of allotments

Complete chronological and centralized pay records.

A system of withholding taxes from pay

A simplified system of interservice payment.

And to eliminate —

Preparation of pay rolls and vouchers

Agent officers from holding pay of absentees

Emphasis now is on prompt payments based on *individual pay records*, rather than on pay rolls and vouchers that include the names of many individuals on one record. Individual pay records are easily modified and lend themselves to speeding transfers of individuals and beginning allotments.

All of us remember unfortunate individuals in the past who were not paid for one reason or another over a period of many months. Such objectionable situations badly affect the morale of the individual concerned. The present pay system virtually eliminates such undesirable incidents.

PAY

The first thing that interests us about pay is — how much money do we get? What is *our basic rate of pay*? The table in Figure 2 shows the pay rates for all grades.

Pay increases occur in most cases upon completion of every two years of service. Your pay rate is based on your cumulative years of service. This is basic pay.

There are also certain types of *special pay* authorized by the new law. For instance: certain physicians and dentists get $100 a month in addition to their basic pay. *Incentive pay* or *hazardous duty* pay is authorized for all grades for such

MONTHLY PAY OF COMMISSIONED OFFICERS

	Under 2 yrs	Over 2 yrs	Over 4 yrs	Over 6 yrs	Over 8 yrs	Over 10 yrs	Over 12 yrs	Over 14 yrs	Over 16 yrs	Over 18 yrs	Over 22 yrs	Over 26 yrs	Over 30 yrs
Gen of Army	$926.25	$926.25			SAME								$954.75
General													
Lt Gen													
Maj Gen													
Brig Gen	769.50	769.50			SAME							798.00	826.50
Colonel	570.00	570.00		SAME					584.25	612.75	641.25	669.75	698.25
Lt Col	456.00	456.00		SAME			470.25	484.50	498.75	527.25	555.75	584.25	584.25
Major	384.75	384.75	384.75	384.75	399.00	413.25	427.50	441.75	456.00	484.50	498.75	513.00	513.00
Capt	313.50	313.50	327.75	342.00	356.25	370.50	384.75	399.00	413.25	427.50	441.75	441.75	441.75
1st Lt	249.38	263.63	277.88	292.13	306.38	320.63	334.88	349.13	SAME				
2nd Lt	213.75	228.00	242.25	256.50	270.75	285.00	299.25	313.50	SAME				

WARRANT OFFICERS

W-4	320.10	320.10	320.10	334.65	349.20	363.75	378.30	392.85	407.40	421.95	436.50	451.05	465.60
W-3	291.00	291.00	291.00	298.28	305.55	312.83	320.10	327.38	334.65	349.20	363.75	387.30	392.85
W-2	254.63	254.63	254.63	254.63	261.90	269.18	276.45	283.73	291.00	305.55	320.10	334.65	349.20
W-1	210.98	210.98	210.98	218.25	225.53	232.80	240.08	247.35	254.63	269.18	283.73	298.28	298.28

ENLISTED PERSONS

E-7	198.45	198.45	205.80	213.15	220.50	227.85	235.20	242.55	249.90	264.60	279.30	294.00	294.00
E-6	169.05	169.05	176.40	183.75	191.10	198.45	205.80	213.15	220.50	235.20	249.90	249.90	249.90
E-5	139.65	147.00	154.35	161.70	169.05	176.40	183.75	191.10	198.45	213.15	227.85	227.85	227.85
E-4	117.60	124.95	132.30	139.65	147.00	154.35	161.70	169.05	176.40	191.10	191.10	191.10	191.10
E-3	95.55	102.90	110.25	117.60	124.95	132.30	139.65	147.00	SAME				
E-2	82.50	90.00	97.50	105.00	112.50	120.00	SAME						
E-1	80.00	87.50	95.00	SAME									

Private under 4 months service—$75.00.

Figure 2. Army Pay Table.

duty as: aerial flights, glider flights, parachute jumping, demolition work, and submarine duty. Incentive pay for officers is $100 per month and for enlisted personnel $50 per month. There is also *diving pay*, which ranges from $5 to $30 a month depending on the degree of hazardous conditions involved.

Enlisted personnel are eligible for one type of extra pay not available to officers. This is foreign duty pay. It ranges from $8 a month for privates to $22.50 a month for master sergeants.

Another source of income open only to enlisted men and women is the reenlistment bonus. This bonus varies according to the number of years included in the reenlistment — $40 for two years all the way up to $360 for a six-year enlistment. This bonus is payable to any enlisted person upon reenlistment, but he or she cannot enlist in another service and still receive the bonus. A variation of this pay is the $20 paid for each year's extension of a reenlistment period.

ALLOWANCES

In most cases, members of the service entitled to receive basic pay are entitled also to receive one or more of certain monthly allowances.

The first is a *subsistence allowance* which amounts to $42 for officers. Enlisted personnel are paid the allowances under the following conditions: $2.25 daily if no government rations are available; $1.05 daily when government rations are available but permission is granted to ration separately. In some special emergency cases enlisted personnel may be paid not more than $3 a day when no government facilities are available.

The next is a *quarters allowance*. This allowance is payable monthly to personnel on duty where no government quarters are available. The rates for an officer vary according to whether he has dependents or not. They range from $60 for the lowest grade warrant officer without dependents to $150 for general officers. Enlisted personnel without dependents are paid $45 per month when on duty where government quarters are not available.

GRADE	WITHOUT DEPENDENTS (when authorized)	WITH DEPENDENTS
Gen Off	$120.00	$150.00
Col	105.00	120.00
Lt Col	90.00	120.00
Maj	82.50	105.00
Capt	72.00	90.00
1st Lt	67.50	82.50
2d Lt	60.00	75.00
WO-4	82.50	105.00
WO-3	75.00	90.00
WO-2	67.50	82.50
WO-1	60.00	75.00

		w/1 dependent	w/2 dependents	w/3 or more dependents
M/Sgt	$45.00	$67.50	$67.50	$85.00
SFC	45.00	67.50	67.50	85.00
Sgt	45.00	67.50	67.50	85.00
Cpl	45.00	67.50	67.50	85.00
Pfc	45.00	45.00	67.50	85.00
Pvt-2	45.00	45.00	67.50	85.00
Pvt-1	45.00	45.00	67.50	85.00

Figure 3. Quarters Allowance.

The Dependents Assistance Act of 1950 provides for a quarters allowance to all enlisted personnel who have dependents, as defined in

the Career Compensation Act of 1949. However, to get this allowance the enlisted man must allot a certain portion of his pay for dependents' assistance in the form of a Class Q allotment. We'll discuss this allotment later in the article. Figure 3 shows the quarters allowances for all military personnel.

We also have a cash clothing allowance payable to enlisted personnel. Enlisted personnel are given a free issue of clothing upon their entry into the service. A basic cash maintenance allowance is then paid ($5.10 per month) commencing with the first month of service for the purpose of replacement and repair of clothing. This allowance continues for the first three years of service. Upon reenlisting for a second tour of duty, enlisted personnel are paid a standard cash maintenance allowance amounting to $6.60 per month. These rates apply to enlisted male personnel; clothing allowance rates for female enlisted personnel are slightly higher.

Our next allowance is for *travel and transportation.* When an individual goes on temporary duty, he is paid at a rate of 5¢ per mile for travel performed plus $9 per diem (when per diem is authorized). For permanent change of station, an individual is paid at a rate of 6¢ per mile for travel performed when no government transportation is furnished.* These travel allowances can be paid in advance for military personnel but not for their dependents. Concerning these advance payments, when an individual arrives at his new station or returns from temporary duty it is absolutely necessary that he submit within 30 days a travel voucher which covers his travel. This voucher then serves to settle the payment made in advance.

Our last allowance concerns few of us. It is a *personal money* allowance payable to lieutenant generals and officers of higher grade. The allowance starts at $500 a year and increases according to rank.

ALLOTMENTS

There are numerous allotments that can be made from our pay. These allotments are:

Class D — Made for U. S. Government insurance available before World War II.

Class E — Made to blood relatives, trusts, banks, and commercial life insurers.

Class N — Made for National Service Life Insurance.

Class B — Made to purchase Government Defense Bonds.

Class B-1 — Made to purchase Government Defense Bonds by installment. One-third of the purchase price of the bond is paid monthly. At the end of three months the bond is received.

Class Q — Made for dependents' assistance. It is the Class Q allotment that must be made by the enlisted man to his dependents before he can qualify for the quarters allowance paid by the government under the Dependents Assistance

*Military personnel are also reimbursed for the travel of their dependents when making a permanent change of station. Dependents over 12 years of age are entitled to 6¢ a mile, but the military person may only draw this amount for two such dependents. Additional dependents over 12 years of age draw 3¢ a mile. Dependents whose ages are between 5 and 12 years are entitled to 3¢ a mile. The maximum reimbursement payable for all dependents is 18¢ per mile.

Act. The enlisted man is required to allot the amounts shown in Figure 4 to qualify for the quarters allowance. The enlisted man may allot all of his pay or any amount above the required allotment that he desires in a Class Q allotment.

GRADE	ALLOTMENT	
M/Sgt & SFC	$80	Plus an amount equal to the enlisted man's quarters allowance.
Sgt & Cpl	60	
Pfc, Pvt-2, & Pvt-1	40	

Figure 4. Class Q Allotment.

For example, a sergeant with three or more dependents must allot $60 (see Figure 4) plus an additional $85 (an amount equal to his quarters allowance). The total, $145, is his Class Q allotment. His dependents will receive the $145 in a check each month. By making this allotment the sergeant then becomes eligible to receive the $85 quarters allowance from the government.

An officer may allot his base pay, monthly subsistence, and quarters allowance, but no amount in excess of these, for Class E, D, B, and N allotments.

SOLDIERS' DEPOSITS

Enlisted personnel have the advantage of depositing money at a high rate of interest. These deposits are called Soldiers' Deposits. An enlisted man may deposit any amount of cash, as long as the money is his own personal money, in amounts of $5 or more. The amounts deposited must be in even dollars. After six months the deposit will pay an interest rate of 4% from date of deposit — certainly something worth considering. The deposits are made through the personnel officer of the unit to the finance officer and can be withdrawn when the enlisted man is discharged, retired, in cases of hardship, or at the end of each three-year period of any enlistment except those enlistments extended voluntarily or involuntarily for one year under the act of 27 July 1950.

FORFEITURES AND STOPPAGES

Your pay may be stopped or forfeited because of an indebtedness to the United States. This indebtedness either may be admitted by you or shown by the judgment of a military court or by order of the Secretary of the Army. However, your pay cannot be stopped to satisfy private creditors.

WITHHOLDING TAX

Income tax is withheld from your pay automatically. The amount deducted is based on your base pay and the number of exemptions you have declared. At the end of each tax year the finance officer will furnish you with a statement showing the entire amount of your taxable pay and the amount withheld for income tax purposes. This statement must accompany your income tax return when you submit it (before 15 March each year). If the amount of your pay changes in any way, or if the number of your exemptions change, then it may be necessary to adjust, at the end of the taxable year, the amount of tax that is withheld from your pay.

This adjustment is made by the Department of Internal Revenue by comparing your withholding statement to the income tax rates that apply to your case.

PAYMENTS

Now, let's get the troops paid! The pay account of every individual in the military service is maintained on a military pay record. *This is a Form 113.* It is printed on a green bank-check-type paper and is maintained only in the Finance Office.

This pay record is opened when the individual first reports for extended active duty, enlists, or reenlists. It is renewed on each 1 January and 1 July. This form has space for such entries as credits, allotments and deductions, withholding tax, collections, and payments. These entries are made only by the finance officer who is also known as the disbursing officer. The military pay record accompanies the individual to his next duty station when he is transferred.

These military pay records are based on *military pay orders* which are furnished by the unit personnel officers. They contain data taken from the individual's administrative records. The military pay order is *Form 114.* This same pay order is also used to notify the finance officer of any subsequent changes in or charges against the individual's pay. For example, in case of a promotion a military pay order would be submitted to change the pay record. The pay order is prepared for the enlisted man by the personnel officer. An officer may prepare his own military pay order although this is usually done by the personnel officer.

Regular payments are made to military personnel at the end of each month. Our pay is based on a 30 day month. Payments for a full month are made on the last day of the month or later — never earlier. Payments to troops in combat or on maneuvers are also made at this time or as soon thereafter as possible.

Partial payments are made for the amounts of accrued pay and allowances due at the date of payment. They can be made under certain conditions to either officers or enlisted men. Some of these conditions are: when under orders for permanent change of station; or at any disbursing office en route when pay records and orders are presented; while on leave of absence when the pay record and leave orders are presented; and in certain cases of emergency, if the request is approved by the local commanding officer. A lesser amount of pay than the amount due on the date of payment can also be made; the requirement is that a sufficient balance remain on the last day of the month to take care of all allotments, deductions, and other charges that must be taken from the pay. Partial payments, like normal payments, are always made in even dollars.

Payments of base pay and allowances are made in one of two ways; the first is in cash payments. Here we find that all payments are in even dollars computed to the next lower dollar due the individual. The odd cents are then carried over to the amount due in the following month. All payments in cash are receipted for on the pay roll money list at the time the actual payment is made.

The next type of payment permitted is by check. Here we find that the checks are mailed to the individual or to a bank. The amounts they show are computed in the same manner as the cash payments — to the next lower dollar.

CLASS A AGENT

Since many of you will serve in this capacity, let's examine the Class A Agent in detail. Any commissioned or warrant officer may be detailed on official orders to make payments.

MILITARY PAYROLL MONEY LIST
(Attach to Payroll Certification Sheet)

G. O. VOUCHER NO. | PAGE NO.
G. O. SYMBOL: 215-280 | CLASS B AGENT VOUCHER NO.

DATE TO WHICH PAY COMPUTED: 31 December 1951 | Amount Due And | DATE OF PAYMENT: 31 December 1951

	SERVICE NO. ARM OR SERVICE, COMPONENT, PAY GROUP LAST NAME FIRST NAME MIDDLE INITIAL	AMOUNT DUE	AMOUNT PAID	SIGNATURE OR CHECK NUMBER
	ORGANIZATION A Co, 16th Inf Regt			
1	RA 12345678 Pvt-2 Inf 164 Abott, Walter J.		65.00	Walter J. Abott
2	RA 23456780 Pvt-2 Inf 164 Allsworth, Henry F.		58.00	Henry F. Allsworth
3	RA 10101010 Sgt Inf 134 Anderson, Jack C.		(143.00)	NOT PAID R&C.
4	RA 24680135 Sgt Inf 134 Baker, Thomas C.		139.00	Thomas C. Baker
5	RA 68057046 Pvt-2 Inf 164 Ballance, Lester J.		[illegible]	Robert B. Rohe
6	RA [illegible]		202.00	Ronald R. Watson
7	RA 6765432 SFC Inf 124 Wycliff, Judson T.		151.00	Judson T. Wycliff
8	RA 34567890 Pvt-2 Inf 164 Zimmerman, Hal		47.00	Hal Zimmerman
	TOTALS			

NME Form No. 1 Rev. 115

Form prescribed by Comptroller General, U. S. February 8, 1949

Figure 5. A completed Money List. Note the method of circling the amount to indicate that no payment was made. The method of indicating non-payment (commonly called "red-lining" differs in various units. However, the notation NOT PAID and the initials of the Class A Agent are required on all copies of the money list. The AMOUNT DUE column is not filled in in organizations where the full amount due (computed in even dollars) is always paid, provided the words "Amount due and" appear over the AMOUNT PAID column, as shown in this illustration. Most units are unanimous in desiring full payment every pay day. However, if an individual desires only a portion of his pay, he notifies the disbursing officer (through his personnel officer) of the amount he desires. In such cases every blank in the AMOUNT DUE column must be filled out with the full amount due each man, and every blank in the AMOUNT PAID column must show the amount paid (the amount desired). Both columns are always filled out by the finance office.

Ordinarily, we find a Class A Agent Officer for each company size unit. A Military Payroll Money List *(Form 115)* and a Military Payroll Money List Certification Sheet *(Form 116)* are made available to the Class A Agent so that he can make his payments properly.

The money list shows the names and amount due for all personnel to be paid in the unit. It contains a column where the person being paid signs the list. A sample money list is shown in Figure 5.

The certification sheet is signed by the Class A Agent when he completes his payments. It certifies that the agent has identified and made proper payments to each payee shown on the money lists. Figure 6 shows a typical certification sheet.

Since you will be involved with cash payments as a Class A Agent, you should do everything possible to systematize your payments and accounting. Done improperly, the job may cause you to make up funds out of your own pocket.

PAYING

There are a few pay procedures or techniques that will keep you from making mistakes when paying the troops. Consider that an average pay roll (the amount paid directly to the troops) for an Infantry company amounts to approximately $15,000 and you will see readily how important it is to maintain a constant check of the records and funds from the minute you receive them until you have completed your job.

Be certain the money you receive from the disbursing officer is the exact amount stated on the money list. Once you sign the receipt for the money your responsibility for the actual cash begins. You will have to account for any shortages in funds after you have signed this receipt.

Now that the money and records are in your hands, begin planning. Don't forget that all personnel on the money list must be included in your payment plan, including those in the hospital, and so on — unless, of course, circumstances exist that make payment impossible. In these cases you use the notation NOT PAID on all copies of the money list. Be sure that you initial all NOT PAID entries and that your initials appear on all copies.

You might find it wise to break down the cash before you actually make the payments to the individuals. You can do this by placing the sum of money due each man in an envelope marked with his name. By doing this prior to actual payments, you are better able to distribute bills of all denominations to all personnel receiving pay. This avoids the age-old situation where the last man in the pay line is paid in nothing but one dollar bills, and it saves you the embarrassment of winding up with insufficient funds. Require each man to count his pay when he receives it and state his acceptance of it before he leaves your presence. Also, require each soldier to sign the original copy of the money list as a receipt.

Finally, after you have paid all the men you can, check your remaining funds with the sums due those personnel you could not pay. Then sign the certification sheet to the effect that the payments have

been made; this, together with the completed money list and any unpaid funds, is returned immediately to the disbursing officer. No funds are retained by the Class A Agent Officer. If you perform all of the above steps your job is complete.

Remember that the morale of your unit may easily be affected if the men are not paid promptly. It is your responsibility as an officer

MILITARY PAY-ROLL MONEY LIST CERTIFICATION SHEET

D. O. VOUCHER NO.

CLASS B AGENT VOUCHER NO.

(1) PAID BY

(For use of paying officer)

DATE TO WHICH PAY COMPUTED	DATE OF PAYMENT	TOTAL NUMBER PAY-ROLL SHEETS
31 December 1951	31 December 1951	5

ORGANIZATION: A Co, 16th Inf Regt

STATION: Ft. Benning, Georgia

(2) APPROVED FOR PAYMENT

TYPED NAME AND TITLE | SIGNATURE

I certify that the amounts shown on attached Pay-Roll Money Lists in column captioned "Amount Due" are based on Military Pay Records of the individuals listed thereon; that all deductions required by law and regulations have been made from authorized pay and allowances legally accruing to such individuals; and that each is entitled to receive the amount shown opposite his name. I further certify that the amounts shown on such Money Lists in the column captioned "Amount Paid" have been paid by me (or my authorized agent as shown below) and entered on the Military Pay Records of the properly identified individuals to whom the payments were made, or reports of casual payments have been forwarded to the disbursing officer having custody of the Military Pay Records of the persons receiving payment.

(3) JOHN D. DOE, Major FC 215-280
(TYPED D. O. NAME AND D. O. SYMBOL NUMBER) (SIGNATURE)

I certify that the amounts shown on the attached Money Lists in the column captioned "Amount Paid" have been paid by me to the individuals listed thereon, after proper identification, as Agent Finance Officer to

JOHN D. DOE, Major FC 215-280
(TYPED NAME OF D. O.)

(4) RICHARD P. COLE, 1st Lt, Inf
(TYPED NAME AND GRADE)

Richard P. Cole
(SIGNATURE)

(5) ACCOUNTING CLASSIFICATION

APPROPRIATION SYMBOL	PAY GROUP	COUNTRY CODE (If outside continental U. S.)	AMOUNT PAID		
			TOTAL	CASH	CHECK
		TOTALS			

INSTRUCTIONS

(1) This block should show the disbursing officer's name, station, symbol number, and month of account.
(2) Approval of the commanding officer of the organization will be obtained on the original certification sheet prior to payment. This approval is not required in the case of casual or partial payments made by the disbursing officer.
(3) Administrative certificate of the disbursing officer should be signed prior to submission of accounts to the Military Pay Division.
(4) Certificate of payment by agent finance officer should be accomplished when applicable.
(5) Accounting Classification; enter on a separate line the total amount of payments chargeable to each appropriation for each pay group number.

NME FORM NO. 1 DEC 44 116

☆ U. S. GOVERNMENT PRINTING OFFICE : 1946 16—87779-1

FORM PRESCRIBED BY COMPTROLLER GENERAL, U. S. FEBRUARY 5, 1948

Figure 6. A completed Certification Sheet. This sheet has been signed by the Class A Agent and is ready to be turned in to the disbursing officer.

to see that your men are paid on time. Your knowledge of pay regulations will assist you in paying your men and also will serve you in counseling them on matters pertaining to pay.

INSTRUCTIONAL MATERIAL

As a service to its readers, the *Quarterly* lists new instructional problems available through the Book Department, The Infantry School. Henceforth, this will be a regular *Quarterly* feature.

Problem #3301. MESSAGE WRITING.

A one-hour problem covering principles of writing field messages; the use of the message book, M-210-B and message form NME-202. Contains: lesson plan, narrative, charts, and SOI. Price, 8¢.

Problem #1126. MARKSMANSHIP PREPARATORY TRAINING, CARBINE M2.

A four-hour problem on sighting and aiming positions, trigger squeeze; sustained fire; sight changes, effect of the wind, etc.; and an examination prior to range firing. Contains lesson plan and narrative. Price, 6¢.

Problem #1128. MARKSMANSHIP INSTRUCTION PRACTICE, M1 RIFLE.

An eight-hour problem on zeroing and practice firing on known distance range; care and cleaning. Contains lesson plan and narrative. Price, 6¢.

Problem #1138. MARKSMANSHIP INSTRUCTION PRACTICE, BAR.

A four-hour problem on zeroing and instruction practice on the known distance range. Contains lesson plan and narrative. Price, 5¢.

Problem #1260. TECHNIQUE OF RIFLE FIRE.

A four-hour problem on methods of instruction in training in technique of rifle fire; steps in training; methods of estimating ranges; target designation; rifle and automatic rifle fire and their effect; application of fire; assault fire. Contains lesson plan, narrative, and charts. Price, 15¢.

Problem #1306. MECHANICAL TRAINING, CAL. .50 MG.

Two-hour problem on general data; disassembly and assembly; head space adjustment; functioning; use of head space and timing gauges. Contains lesson plan and narrative. Price, 6¢.

Problem #1605. CREW DRILL, 81-MM MORTARS.

Two hours on placing the mortar in action; laying the mortar for direction; duties of the crew; safety precautions; referring the sight; additional aiming stakes; angles of shift; removal of misfires; platoon drill; and gunner's examination. Contains lesson plan and narrative. Price, 15¢.

Problem #1665. TARGET-GRID METHOD OF FIRE CONTROL.

Four hours on organization and operation of the fire direction center; duties of FDC personnel; use of the M10 plotting board for controlling Infantry mortar fire. Contains lesson plan and narrative. Price, 20¢.

The above items may be ordered from
The Book Department, The Infantry School, Fort Benning, Georgia

ENERGA: TANK KILLER

By CAPT WILLIAM S. SMITH, Infantry

"I watched him clank toward me. Scared — ? Sure I was scared. But I stuck — and sweated him out. A hundred and fifty yards, I wanted to run; seventy-five yards — just a little more. Fifty yards — now! I carefully aimed — and fired. A hit! I watched him burn — no more tank. I felt good; this was worth the wait."

"Who am I? Just a rifleman in Baker Company, ——— Infantry. What's that? What was I using? Just a rifle grenade, Bub, just a rifle grenade. But what a grenade!"

This enthusiastic soldier is talking about the latest addition to the family of antitank weapons — the Grenade, Rifle, HEAT, T41, popularly known as the Energa rifle grenade. (See Figure 1.) This grenade places in the hands of the individual soldier tank-killing power equal to or greater than that of any antitank weapon found in today's Infantry battalion, excepting the 3.5-inch rocket launcher.

The Energa grenade provides greater armor penetration than the M9A1 rifle grenade, along with increased range and accuracy. Although the Energa contains a much larger explosive charge, it weighs approximately the same as the M9A1 grenade. This lighter proportionate weight is due to its aluminum alloy case.

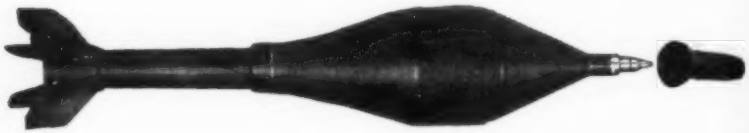

Figure 1. The Energa rifle grenade, new close-in tank-killing weapon for the front-line soldier.

The Energa, using a shaped charge, will penetrate the armor of any known tank at any range from which a hit can be made. It does not depend on velocity to obtain penetration.

Fin-stabilized in flight, the projectile has in its nose a fuze that, upon impact, initiates base detonation of the shaped charge.

The T41 grenade is 15.75 inches

long; it weighs 1.4 pounds; and its largest diameter is 2.95 inches (75mm). It is effective at any range at which a hit can be obtained; its maximum range is about 300 yards.

To prepare the Energa grenade for firing, proceed as follows:

1. Clear and lock your rifle.
2. Load a grenade cartridge in the chamber and close the bolt.

Figure 2. Standing position.

The Energa grenade is fired from the Energa launcher. The standard rifle grenade cartridge, calibre .30, M3, is the propellant. The auxiliary cartridge, M7, is not used with the grenade nor is the grenade fired from the carbine.

3. Remove the rubber fuze cap from the nose of the grenade and slip the grenade's stabilizer tube on the launcher, making sure it is fully seated.
4. Unlock your rifle, aim, and fire.

A man, when trained in firing the Energa grenade, can place accurate fire on targets within a 100-yard range. The grenade can be fired from the standing, kneeling, or prone positions.

To fire from the standing or kneeling positions:

1. Insert your left arm in the hasty sling; with your left hand grasp the rifle firmly, forward of the balance, and draw your left elbow well back so that the sling is tight cross your chest.

2. Place the comb of the stock in your right armpit with your right upper arm passing over the stock. Grasp the small of the stock with your right hand in the normal manner — thumb over the top, index finger on the trigger.

3. Hold your head in a raised position and inclined to the right so you can make a correct sight alignment.

4. In the standing position, turn your body about 60° from the line of fire, with your feet spread about two feet apart. Lean into the rifle with your left knee bent and your right leg straight but not stiff. (See Figure 2.)

5. In the kneeling position, kneel on your right knee, half faced to the right, with your left knee bent. Lean well forward so you are not sitting on your right heel. (See Figure 3.)

Figure 3. Kneeling position.

To fire from the prone position, use a handy butt rest (stump, rut, or hole in the ground). Hold the rifle in position by placing your right upper arm over the comb of the stock; with your left hand, grasp the rifle firmly forward of the balance. Hold your head up and inclined to the right so you can make a correct sight alinement. (See Figure 4.)

To sight and aim the Energa grenade:

1. Estimate the range to the target.
2. Aline the target in the vertical slot in the sight leaf.
3. Move the rifle to a position where the sight arc corresponding to the estimated range (30, 70, or 100 yards) coincides with the ogive* of the grenade and is alined on the target.

For a stationary target, the point of aim is the center of mass of the target. If the target is moving, the correct leads are:

Miles Per Hour	Leads at Range of 30 yards	70 yards	100 yards
15	½	1	1½
25	1	2	3

These leads are based on the apparent length of the target and apply regardless of the angle of approach or departure of the target.

In addition to its use as a close-in antitank weapon, the T41 grenade is also useful in the attack of a fortified position or built-up area.

The struggle for supremacy between armor and anti-armor weapons is never ending. The Energa grenade is one more weapon that permits a well-trained soldier to meet tanks on more nearly equal terms.

Figure 4. Prone position.

*Ogive — also called the "head" of the grenade.

A WEEK WITH EASY COMPANY

By CAPT BICKFORD E. SAWYER, JR., Infantry

During March 1951, a vigorous UN counteroffensive was under way and all along the line we were driving the Reds back across the 38th parallel. This article was written to describe seven days of typical rifle company combat during this phase of the UN War in Korea.

7 March

On 7 March 1951, Company E, 23d Infantry, along with the rest of the 2d Battalion, arrived by vehicle at Norunbau, a small town in South Korea.

The 140 men and four officers of the company were tired from two months of continuous fighting. It had been particularly tough going since the 27th of February and we were looking forward to a rest. But, as is so often the case, by 2000 hours that night an attack order had arrived from regiment. We would fight again on the 8th.

The 1st and 3d Battalions of our regiment had reached a line just south of Yangjimal. (See Figure 1.) They had been pushing the enemy slowly north for the past week and were now running into heavy resistance. On the morning of 8 March the 1st Battalion would revert to regimental reserve, while the 2d and 3d Battalions would continue the attack northward.

According to the plan, the 3d Battalion would jump off before the 2d Battalion and clear the high ground on the left side of the main north-south road. As soon as this ground was clear, the 2d Battalion would move through the 1st Battalion and initially secure Objective A. (Figure 1 shows the entire area of operations for the week's activities.)

The 2d Battalion planned to attack in a column of companies, Company E leading. One platoon from the regimental tank company, one section of heavy machine guns, and one litter squad were to be attached to Company E, as were 81-mm mortar, 4.2-inch mortar, and artillery forward observers.

We were to clear our present area by 0800 hours, and march to an assembly area behind the 1st Battalion. A complete attack order would be issued after a reconnaissance of the forward areas. Company E spent about an hour making preparations for the impending attack before getting some sleep.

8 March

At about 0830 hours the next morning, the company arrived in the assembly area. The men were dispersed and left under the command of the company executive officer. The company commander went forward with his radio oper-

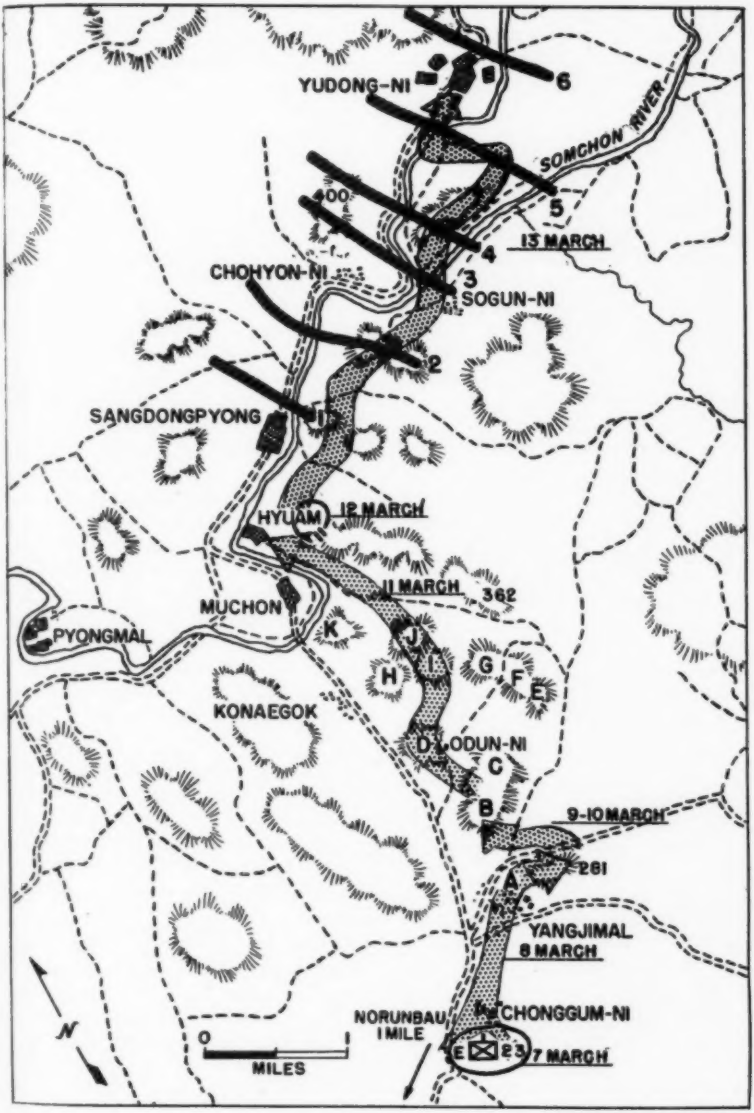

Figure 1. Area of operations, Company E, 8-13 March 1951. The heavy line represents the actual route followed by the company.

ator and a messenger to receive the attack order* and make his reconnaissance. The battalion commander issued the attack order on a small hill about 1,000 yards south of Objective A.

The 3d Battalion on our left had already started their attack. We were to attack as soon as the hills on our left flank were cleared. The company commander, calling his exec by radio, ordered him to send all platoon leaders and FO's forward along the road where a messenger would intercept them and bring them to the OP. The CO then made his reconnaissance. As is normal in such situations, there was no enemy in sight.

When the platoon leaders and the FO's arrived, the company commander pointed out the objective and outlined a plan of attack. (Figure 2 shows this plan.) The company was to attack with two platoons on line, 2d Platoon on the right, 3d Platoon on the left, followed by the command group, HMG section, Weapons Platoon, and the 1st Platoon in support.

The 1st Platoon was to carry three litters in addition to the two litters carried by one attached litter team. This system, followed by all rifle companies in the battalion, gave each one five litters, a considerable morale booster. Normally, these additional litters were carried by men from the company headquarters, but at this stage we were so short of men that we couldn't continue the practice. If the support platoon later was called on to take over the mission of an assault platoon, the men would place the litters on the ground to be picked up later. (The litter bearer section attached to each battalion from the Regimental Medical Company simply could not handle the load of casualties in the normal attack situation. This was especially true when litters had to be carried over long distances, often the case in Korea.)

Our attached regimental tank platoon had moved forward and was waiting for us at the line of departure. In addition, a platoon from the 72d Tank Battalion had moved forward in our zone of action and was at this time within 500 yards of our objective.

The country being fairly open, we decided to employ the Weapons Platoon in a direct support role. The 60-mm Mortar Section was placed in direct support of the 3d Platoon, and, since the tank platoon of the 72d Tank Battalion was already well to the front, the mortar crews accompanied the 3d Platoon as far as a small creek about 600 yards from the objective, which afforded excellent positions for this section.

Because of the personnel shortage our 57-mm Rifle Section had only two guns. These were also placed in direct support of the 3d Platoon and were to move initially to the same area as the 60-mm mortar positions.

In this case, excellent observation and fields of fire dictated the position areas for the 57's. However, firing position assignment was rarely the case with the 57-mm Rifle Section. Most of the time we found it better to attach a squad to each

*The Infantry School believes that one other company officer should have been with the company commander when he received the attack order.

platoon. In this manner fire could be brought upon a target speedily and with much greater control. Also the gunner is much less likely to hit friendly troops when attached to a platoon due to the platoon leader's close control.

The CO decided to have the forward observers stay with the company executive officer. Normally, the FO group went along with the company command group, but in

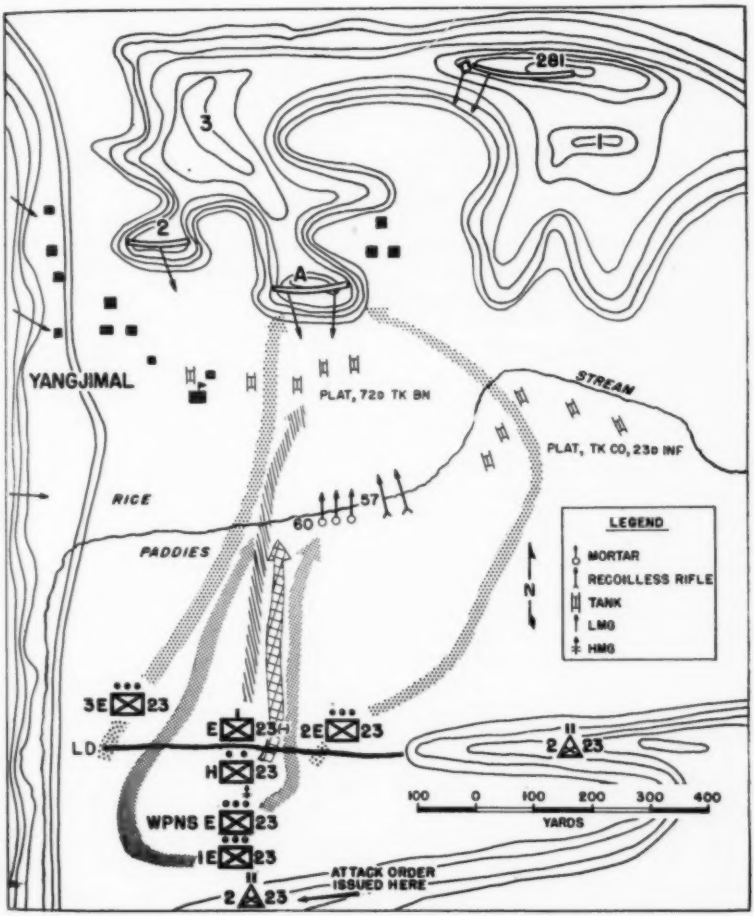

Figure 2. First phase of attack, 8 March.

this case communication between exec and company commander was good and the position of the executive officer offered excellent observation of the battle area; therefore, the observers were placed there.*

Since the company had only two SCR-536 radios, control of the platoons was difficult. These two radios were assigned to the mortar section, and messengers and personal contact between company commander and platoon leaders were to be used to control the actions of the platoons. As was customary in this company, the company exec, with his SCR-300 on the same net as the company commander, was to place himself between the weapons and support platoons and pass messages along to them from the company commander.

Generally, we found the SCR-536 radio did not stand up under the normal rough handling that it got in a rifle company. We were accustomed to its loss from time to time, a factor that came to have little effect on our operational efficiency. We did find, however, that lack of radio communication does require more explicit orders and closer contact between the company commander and the platoon leaders.

After the attack order was issued, the platoon leaders reconnoitered and then returned to their platoons, which had moved up along the road to a covered position.

By 1000 hours the 2d Battalion was ordered to attack without waiting for the 3d Battalion to take its objective. Company E moved rapidly to the line of departure, went into its attack formation, and jumped off. The 2d Platoon picked up the attached regimental tank platoon and swung out to the right in a formation to protect the company's exposed right flank. With the additional tanks they formed a more than adequate shield for the company.

The plan of supporting fires did not work out as we had hoped prior to the attack. Priority of fires to the 3d Battalion and communication difficulties between the FO's and their fire direction centers left us with no supporting fires except our own organic weapons and the tank platoons. This situation lasted until after we had taken the objective.

As the company moved forward, the 3d Platoon, which had the most direct route to the objective, came under fire as they came on line with the 72d Tank Battalion platoon. At this point the platoon was approximately 200 yards from the objective. Enemy machine gun and small arms fire came from the left flank, front, and right front. Although the fire was intense and prolonged, it was impossible to spot a single enemy soldier. (The enemy in Korea is a master of camouflage.)

By using the retaining walls of the rice paddies as cover, the 3d Platoon was able to advance with the tanks up to the base of the objective hill. During this movement

*The Infantry School believes that the forward observers were left too far in the rear to effectively carry out their mission. Forward observers should be near the company commander in such a situation. The presence of the forward observers with the company commander increases his channels of communication and insures his ability to call for, shift, or lift fires quickly.

the tanks gave excellent supporting fire.

In the meantime the tanks of the 72d were contacted on the tank platoon commander's external interphone. Part of the tank fire was shifted to the small hill (marked 2) on our left front, with the remainder of the tank platoon supporting our attack by overhead fire as we moved up the objective. (In the din of battle the tank external interphone is the rifle platoon leader's main source of communication with the tank commander.)

By the time the tanks began firing, the 2d Platoon had completed its swing and was converging on the hill from the right front. The 3d Platoon immediately joined in the assault and moved up the hill with fixed bayonets and marching fire. The leading elements stormed the top of the hill with hand grenades and within several minutes had overrun the enemy positions. Eight enemy dead were found on the hill. Company E suffered 13 casualties.

Heavy fire coming in from the front and left front made it impossible to move to the forward slopes, so the 3d Platoon assumed defensive positions just back of the peak. Since the objective was not as large as had been expected, the 2d Platoon pulled down off the hill and went into defensive positions along its right base. Sniper fire from the small hill to our left front (Hill 2) was becoming an increasing hazard and had already killed one man. Having radio communication with both tank platoons, the company called the left tank platoon which quickly placed fire on the forward slopes of this small hill, reducing the enemy fire.

By this time the communication difficulties between the FO's and their fire direction centers were straightened out and the artillery was available. Fire requests were made through the company exec for 4.2 inch mortar fire on Hill 281, artillery fire on the small hill to the left front, and 81-mm mortar fire to our direct front. From their observation posts the FO's were able to give us very accurate fire. The artillery fire came so close to the hilltop that we were unable to look over the hill. After 15 minutes of this supporting fire, there was no more enemy sniping.

Now that our forward slopes were clear we decided to bring up the heavy machine gun section. After it was in position, a quick check of our defensive dispositions indicated that we could hold the objective against almost any counterattack. We reported to the battalion commander by radio that the objective was secure. Battalion ordered us to remain in place and support by fire, if necessary, the attack of Company F which was to move up and take Hill 2 on our left front. Company F jumped off and took its objective a short time later.

We then received radio orders from battalion to attack and hold Hill 281, to our right front. The 2d Platoon, designated for this mission, was to be supported by the HMG Section from its positions. One squad of the 57-mm Rifle Section was ordered forward to support the attack from Objective A. Figure 3 shows this phase of the attack.

Just before the 2d Platoon's attack, a heavy concentration of enemy 82-mm mortar rounds fell on A. It inflicted heavy casualties on the 3d Platoon, the HMG Section, and the 57-mm Rifle Squad. The latter was completely wiped out. Fortunately, many of the men on the hill were in fox holes or our casualties would have been even greater. The fire was so accurate and its effect so deadly that we as-

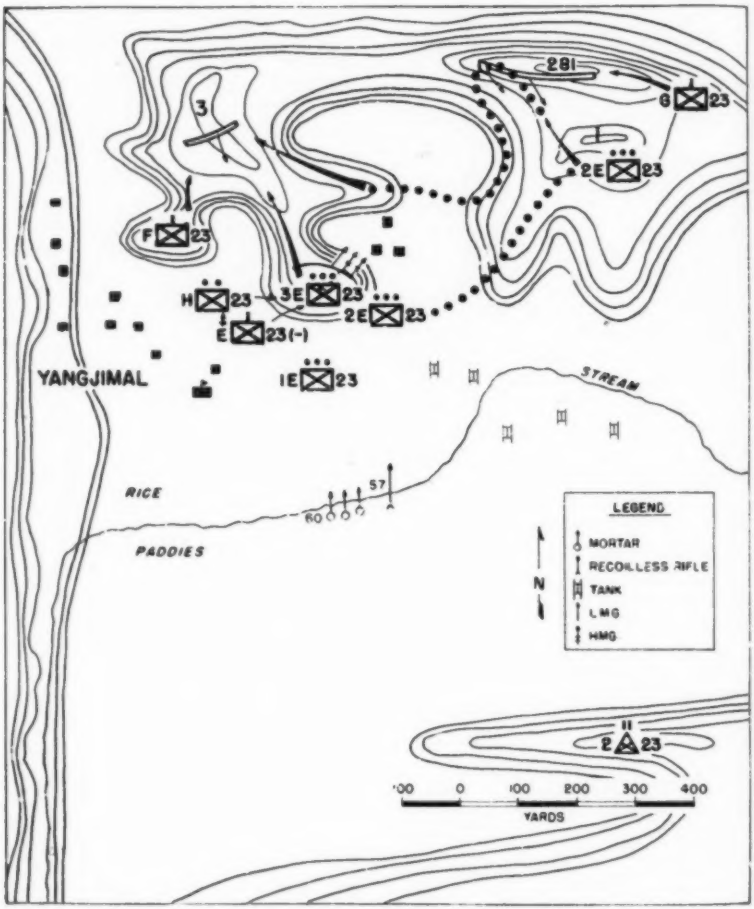

Figure 3. Second and third phases of attack, 8 March. 2d Platoon and Company G seize Hill 281. Then 2d and 3d Platoons capture Hill 3.

sumed afterward that the enemy must have "zeroed in" on our hill before we took it. This incident brings out the importance of *digging in* on an objective as soon as it is taken, and *staying in the fox holes.*

Following a 15-minute mortar, artillery, and tank fire preparation, the 2d Platoon jumped off for its objective at about 1400 hours. First, the platoon moved to a small ridge (Hill 1) in front of Hill 281, then proceeded up the side of Hill 281. Both heavy machine guns of the machine gun section and the light machine gun from the 3d Platoon fired just ahead of the 2d Platoon as it progressed up the hill. It was a perfect setup for the employment of machine guns in supporting an attack.

Heavy small arms and machine gun fire coming from dug-in emplacements and log-covered bunkers stopped the advance 50 yards from the top of the steep hill. For some reason, probably the enemy's poor marksmanship, not a single man in the platoon was hit. As soon as they were fired upon the men scrambled behind the nearest cover, while our machine guns and rifles back on Objective A took the enemy under fire. This fire drove the enemy down into their holes and enabled the leading elements of the 2d Platoon to draw back to the small ridge (Hill 1) where the remainder of the platoon was waiting.

The entire action was reported by radio to the battalion commander, who decided to commit his reserve, Company G. This company was to attack around the right flank of the 2d Platoon. Then, together, the 2d Platoon and Company G would assault the enemy on top of the hill. Because mortar shells were still falling at intervals around the area, the 2d Platoon dug in while awaiting the arrival of Company G.

In the meantime, the attached regimental tank platoon, contacted by radio, fired at the log-covered emplacements on the top of Hill 281. It was impossible to use mortar or artillery fire because the 2d Platoon was too close to the enemy, but the accurate fire of the tanks created no such problem. Just a few minutes after the tanks finished firing, Company G began its swing around the flank. Outflanked, the enemy on Hill 281 withdrew without a fight. The 2d Platoon moved forward unopposed, until it made contact on the top of the hill with Company G.

Shortly afterward the battalion commander ordered Company E to sweep Hill 3 northwest of Company E, so that all hills adjoining Objective A would be clear of the enemy. In a modified double envelopment, the 2d Platoon pushed west toward the hill and the 3d Platoon north.

Within 30 minutes the enemy had been cleared from the hill. The 2d Platoon had one man wounded during this sweeping action, which is shown in Figure 3.

At about 1600 hours orders were received to move into the battalion perimeter. By 1800 all platoons were dug in and all defensive fires registered. (Our normal defensive disposition while on the line at night was almost invariably such a perimeter. In Korea this is a necessity because of the gaps between units and the ability of the

Reds to by-pass the front line units and attack the otherwise undefended CP areas.)

Two wire lines were laid from the battalion CP to our company CP. The two lines were laid over different routes to reduce the possibility of interruption of communication. Company communication personnel laid wire lines to each platoon, and each platoon in turn laid lines to its squads. This required two sound powered telephones in each platoon headquarters plus a reel of wire, and one sound powered telephone for each squad. After using this system for sometime we had found it all but indispensable when platoons are assigned the wide frontages common in Korea.

At night, the need for reliable communication is greatest. Men have a natural fear of darkness; also they want to know what is happening. We helped solve both of these problems: first, by requiring two men in each fox hole; and second, by providing telephone communication down to the squad. In an attack on our positions the company commander could talk with each platoon and each platoon could communicate with each one of its squads. This requires carrying a little extra equipment, but we never heard of anyone discarding a telephone or a reel of wire.

The casualties for Company E during the day were 26 WIA and 4 KIA. There was no enemy contact during the night of 8-9 March.

9 March

Early next morning the battalion resumed the attack, Companies F and G leading. Company E, in reserve, stood by to execute either of two plans to reinforce the attacking rifle companies.

At about 1400 hours orders came to sweep the southern slope of Objective B. (See Figure 1.) At this time the top of the objective was held by Companies F and G, which had flanked the enemy positions in an attack from the east. The 1st Platoon, Company E, was designated to sweep up the slope and link up with Company G on the top. It was supported by the 2d Platoon. No enemy were encountered during the sweep.

At this time the 3d Battalion was still to the left rear of the 2d Battalion, and the right flank of the 2d Battalion was in a precarious situation. Regiment decided to hold the 2d Battalion in its location on Objective B, at least until the left flank was no longer exposed. The battalion went into its usual perimeter defense formation, this time with Companies G and F on the top of Objective B, and Company E down in the valley covering the rear. One platoon of tanks and one platoon of AAA automatic weapons, self-propelled, were attached to the battalion and placed in the company area. They were located to cover the roads on either side of Objective B. Riflemen furnished close-in protection for these weapons.

There was no enemy contact during the night of 9-10 March.

10 March

On 10 March, with the exception of sending out a few reconnaissance patrols to the front, the battalion stayed in position. Hot meals were brought up from the rear, and the companies reorganized and brought

up supplies. Just after supper, a heavy enemy mortar concentration fell in the battalion perimeter. The first rounds hit Easy Company's area. One man was killed and five were wounded. Tragically, the man who was killed was helping two slightly wounded friends to the battalion aid station. This death could have been avoided. Slightly wounded men should not be permitted to leave the protection of their foxholes during mortar or artillery fire. In Korea enemy mortar fire rarely lasts longer than 30 minutes.

With the exception of the firing of our own artillery and mortars, it was quiet for the remainder of the night.

11 March

On 11 March, the 2d Battalion, with Companies E and G in the assault, rapidly swept through all intermediate objectives and by nightfall arrived in the town of Hyuam, where the battalion went into a perimeter defense, with Company E occupying the north section.

12 March

On 12 March, Company E moved and occupied the east portion of the battalion perimeter. This position, formerly occupied by Company F, was a large hill overlooking the town of Hyuam. The entire day was spent in making this move, improving fox holes, and cleaning weapons.

During the day Company F, reinforced with a platoon of tanks, patrolled about two miles up the main Hyuam-Yudong-ni road, capturing 20 North Korean soldiers.

13 March

On 13 March an order came to attack and secure the town of Yudong-ni. Company E was to clear the enemy from all ground within small arms range of the main road on the right side of that road. Attachments to assist in this mission were one section of light machine guns from Company H and forward observers from the 81-mm mortars, 4.2-inch mortars, and the field artillery. Six phase lines (see Figure 1) were laid out over the route that the battalion was to follow. These phase lines ran over the major ridge lines perpendicular to the route of advance. Company G was to attack up the left side of the road, and Company F was to move along the road in reserve. One platoon of tanks and one platoon of AAA automatic weapons were to support the attack from the road.

Company E moved out at 0840 hours, with two platoons abreast, the 2d Platoon on the left and the 1st Platoon on the right. Behind these two platoons followed the command group, the machine gun section, the weapons platoon, an attached litter squad, and the 3d Platoon in support. After securing the first phase line, the operation became one of hill to hill movement. Therefore, we leapfrogged the two leading platoons. At each hill one platoon deployed, the machine gun section and the 57-mm rifle section went into position along the ridge, and the mortar section went into position immediately behind the ridge. As soon as all weapons were in place the other platoon would move forward to the next hill. We moved in this manner until we reached Phase Line 4,

where heavy woods compelled us to employ a column of platoons.

Company G was having difficulty moving up Hill 400, so the battalion reserve, Company F, was committed on that side of the road. At the same time Company E was ordered forward to Phase Line 5, which was reached at about 1530 hours. Orders were then received to move into the town of Yudong-ni, clear the town of enemy, and occupy the low hills to the north and northwest of the town. Three tanks were attached to the company for this mission.

The 1st Platoon led the attack into the town. This platoon pushed through aggressively with the tanks, and occupied the hills to the north. A few civilians were hiding in the houses. The leading elements saw no enemy, but the support squad, searching a few of the houses, found several enemy soldiers apparently caught by surprise by our rapid movement.

With the 1st Platoon on its objective, its accompanying tanks were set to help the 2d Platoon. This platoon had turned left at the outskirts and was now sweeping through the northwest portion of the town and the hill beyond. The only enemy encountered were those in the 1st Platoon area.

Just as the 2d Platoon cleared the northern edge of town it came under intense fire. The platoon leader immediately sent one squad around his left flank and advanced with the remainder of his platoon toward his objective. By using a deep drainage ditch and a low ridge he was able to maneuver unobserved by the enemy. (See Figure 4.)

Nearing its objective, the 2d Platoon was joined by the tanks. With all their machine guns they opened fire on the houses in which the enemy were holed-up. Enemy fire stopped and the tanks moved forward in column making a circuit of the area still firing all their machine guns. The Infantry platoon, moving in before the enemy could reorganize, killed several and took three prisoners. It then moved onto its objective and dug in.

A survey of the 1st Platoon's location indicated that it could more effectively hold its portion of the town from the hill northeast of town. With the tanks in support, since we had not determined whether or not the hill was occupied, the platoon moved to the new position. It turned out to be clear, so the platoon dispersed immediately and dug in.

The 3d Platoon, ordered to check all the houses of the town adjacent to the river, found several more of the enemy in hiding. They were captured without a fight. This platoon then moved back to a position where it could support the rest of the company in case of a counterattack. Figure 4 shows the action within the town and the final platoon dispositions.

Near the end of this operation, a forward air controller, who had been overwatching our attack from an AT-6 aircraft, dropped a message informing us of enemy to the east who were trying to escape over a large hill. The aircraft marked the target with a smoke rocket and all three tanks immediately took the enemy under devastating fire.

After this incident, Yudong-ni was clear and secure. In this action

Company E captured eight prisoners of war while suffering no casualties.

At approximately 1900 hours the company was relieved by a company from the 38th Infantry. We proceeded to the battalion assembly area where we boarded trucks to take us to our long awaited rest.

This article is not intended to convey the idea that Easy Company was all-conquering because of a brilliant application of tactical principles and techniques. Rather, it is an account of one rifle company going about its daily business in a tricky little war where, day in and day out, Infantrymen are performing their mission of "closing with and destroying the enemy."

Easy Company had its share of individual heroism but most of its success resulted not from spectacular individual exploits but a steady-

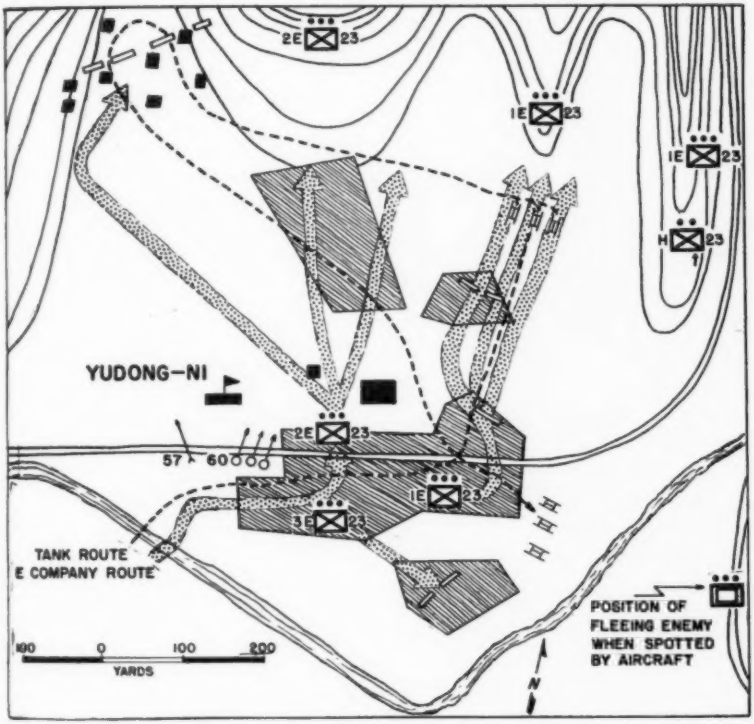

Figure 4. Action in Yudong-ni and Final Platoon Dispositions.

going business-like use of proven Infantry tactics and constant teamwork with supporting elements of ground and air forces.

Men of Company E accepted, philosophically, the fact that "some days you don't make a dollar" but that in the long run steady plugging will show a profit balance in the victory column.

"I should like to emphasize that wars are still tough slugging matches — Korea has emphasized that. It has proven once again that we still need men as well as the implements with which they fight. The core of our ability to fight is trained manpower."

General J. Lawton Collins
Chief of Staff, U. S. Army

HEAVY MORTAR DIGS IN

By CAPTAIN ARTHUR W. WILSON, Infantry

"DIG IN!" Byword of the Infantryman, catchword of the deliberate defense, "digging in" is the shield of the soldier. When the Korean campaign became one of limited offensive with emphasis on decimation of the enemy instead of maneuver for territorial gain, the need for better defensive positions became paramount. The Heavy Mortar Company of the 31st Infantry Regiment gave considerable thought to the design of an emplacement for the heavy mortar which would enable it to fire under almost any condition imposed by enemy mortars or artillery.

We employed a bunker-type emplacement as an answer to enemy weapons. (See Figures 1 and 2.) These emplacements, located behind natural masks whenever possible, have proved themselves against enemy mortars and artillery. The bunkers of the emplacement were protection against anything but direct hits from the 120-mm mortar, the high velocity 76-mm gun, the

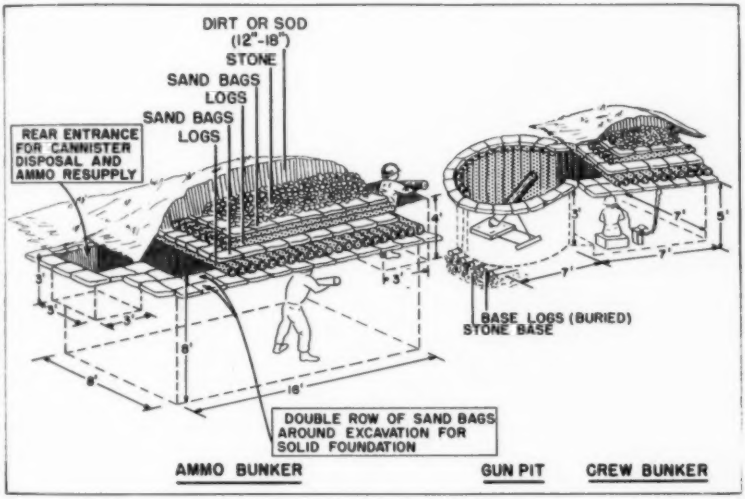

Figure 1. Cutaway view of 4.2-inch mortar emplacement.

105-mm howitzer, or larger weapons. These emplacements enabled our heavy mortars to lay down a concentrated fire in the face of "incoming mail" with comparative safety for ammunition and crews.

pits had to be prepared so that continuous fire could be maintained.) Finally, was timber available to build overhead cover?

Each mortar emplacement consisted of two bunkers with a gun

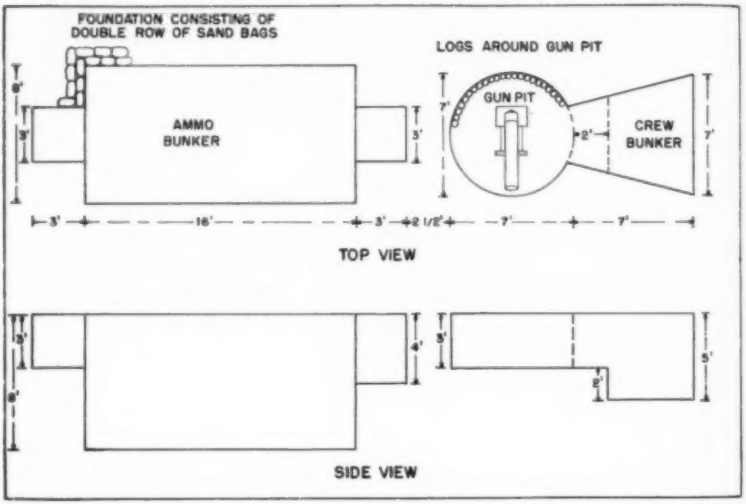

Figure 2. Dimensional drawing of 4.2-inch mortar emplacement.

In choosing our positions we first considered the tactical location — could the target be covered? Next, was there a suitable mask behind which mortars could be placed for protection against flat trajectory fire? Third, was the position on or near the axis of signal communication and supply? Fourth, and peculiar to the 4.2-inch mortar, what about local soil characteristics? (Was the soil of firm and rocky texture so the base plate would not sink on each round fired? If not, then rocked and logged gun pit between them as shown in Figure 1. The crew bunker held the squad leader, the gunner and assistant gunner, and equipment for communication to the fire direction center and to platoon headquarters. The ammunition bunker housed the ammunition bearers and the ammunition. The gun pit and bunkers were sited so that the long axis of the emplacement was perpendicular to the primary azimuth of fire.

Construction time for each gun position varied from 120 to 300 man hours depending on local soil con-

ditions and the availability of timber for the bunker covers. This construction time was not excessive when you recall that the heavy mortar squad has nine men. Necessary material for construction is limited only by ingenuity in any theater of war. Such items as logs, planking, corrugated iron roofing, doors, woven straw mats, rice bags, sandbags, and stones may be used.

The gun pit, the focal point of the emplacement, was circular with a diameter of seven feet so that the mortar had a 360° traverse. Normally the pit was about three feet deep with a parapet around it. On its floor, beneath the base plate, we placed several layers of rock and logs to insure stability of the mortar during sustained fire, and to prevent the base plate's sinking.

The 180° of the gun pit facing the primary azimuth of fire had logs six to eight inches in diameter placed vertically behind the base plate. This prevented the base plate from digging itself in or skidding back during prolonged firing. When these precautions were taken, and the mortar heavily sand-bagged, a normal barrage of 25 or 30 rounds could be fired without relaying the gun. The sides of the pit may be strengthened with woven wire or branches to prevent crumbling. The gun pit had no overhead cover. A camouflage net may be draped on poles over the pit itself and removed prior to firing.

The crew bunker, a trapezoid about seven feet long and five feet deep, was actually the squad command post. It connected directly with the gun pit. The bunker widened out at the rear to provide space enough for the three men who occupied it. This shape gave maximum protection. Telephone communication and some rudimentary system of lighting for night firing were usually installed.

The rectangular ammunition bunker, the larger of the two, measured about 16 feet in length. This bunker had a firestep with a two and one-half foot wide parapet between it and the gun pit. This allowed the first ammunition bearer to remain within the bunker, set charges and fuses, and yet be able to pass the round to the assistant gunner for firing. The opening over the fire step was not covered, allowing the ammunition bearer to work freely between the gun pit and bunker. There was an entrance for ammunition and removal of empty ammunition containers at the rear of the bunker. Ammunition was laid on duck-boards and a sump dug if the position were wet or the drainage poor.

We laid a double row of sandbags around the perimeters of both bunkers before laying logs across the short dimension. Such a sandbag foundation prevented the sides from caving in by distributing the weight of the logs and the covering.*

A minimum of three feet of logs, stone, and solidly compacted earth formed the overhead cover. No more than four feet of overhead cover can be used if the mortar is to have mask clearance when traversed to the right or left of its primary azimuth.

The first layer consisted of logs

*The Infantry School believes that a firmer foundation might be obtained if log or timber sills were substituted for the sandbags.

about eight inches in diameter, laid closely together, and extending at least 18 inches beyond each side of the hole. The second layer consisted of closely alined and interlocked sand bags or mats, or any other covering, such as dirt. More logs were then laid crosswise to the first layer of logs. Another layer of sandbags or earth was put on followed by a layer of stone. The top layer was packed earth, with a layer of stone just beneath the surface. The entire position was covered with sod or other camouflage.

A mortar position of this type, while not offered as the answer to all conditions that may be encountered, has proved itself of considerable value. It is a solution to the need for a heavy mortar position in the defense and is one answer to the command "DIG IN!"

"The ideal officer is not afraid of anything — not even a new idea."
Hon. Robert P. Patterson

AUTOMOTIVE FIELD EXPEDIENTS

By LT THOMAS D. KERR, Infantry

Good maintenance — reliable vehicles; one follows the other. But however well-maintained a vehicle may be, there is always the chance that it may be crippled by some minor, unforeseen defect or even breakdown. The smart commander, therefore, trains his drivers to act intelligently in the event of trouble while operating alone. In addition to teaching emergency repairs such driver training stresses the many ways of regaining mobility when stopped by difficult terrain.

Some of the highest tributes paid to the military driver in Korea were prompted by the driver's ability to keep vehicles rolling by means of temporary repairs until more permanent types could be made and by his use of good common sense and initiative to move vehicles over difficult terrain.

Temporary repairs frequently involve the use of field expedients — the use of materials and equipment at hand to serve in lieu of those normally used. Any field expedient must be considered a temporary means of repair and a permanent repair should be made at the first opportunity.

Driver training programs divide the subject of field expedients into two headings — roadside repair and vehicle recovery. Roadside repair is taught by showing types of mechanical failure and recommended expedients. In this phase of training, a driver learns to consider the importance of his mission and whether he will save more time by performing repairs or by completing his mission on foot.

A well-instructed driver, with a high degree of initiative, may complete a repair job or devise an expedient without previous training on the particular type of mechanical failure confronting him.

Some of the most likely mechanical failures can serve as examples for training the soldier in temporary means of repair, as well as teaching him the importance of ingenuity. Here are a few typical failures and their remedies:

a. *Broken spring leaves* are splinted with strong pieces of wood or tightly wrapped in place with wire. One, or several, tent pins may be used as splints. If necessary, prevent axle displacement by fastening wire around the front spring hanger and the axle. Drive the vehicle slowly, and avoid road bumps until repairs can be made.

b. *A burned-out light fuse* may be replaced temporarily with tinfoil. Do this only after the short in the system has been eliminated. Remove the tinfoil as soon as possible and replace with the correct light fuse.

c. *A broken fan belt* may be replaced with rope or waist belt, or

the old fan belt may be fastened together with wire. Wrap friction tape around the belt to reinforce the splices.

d. *Loose or broken wires* may be repaired temporarily by splicing and covering the splice with friction tape.

e. *Cracks in a cracked distributor cap* (see Figure 1) have a tendency to fill with moisture. Sparks, running along the moisture, cause some burning, which creates carbon. The longer this continues, the more carbon is formed. Scrape a notch in the distributor cap, or rotor, deep enough to remove all carbon from the crack, then fill the crack with tar from the top of the battery.

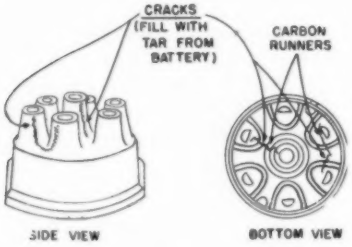

Figure 1. Cracks in a distributor cap, or rotor, can be repaired temporarily by scraping carbon from the cracks and filling them with tar from the top of the battery.

f. *Loose battery terminals* cause high resistance in the starting circuit. To check for high resistance, shift the transmission into the highest gear and set the brakes. Place one finger on each battery terminal and have an assistant close the starter switch for 6 to 10 seconds. (CAUTION: Do not hold the switch closed longer than 10 seconds.) If there is high resistance in the battery terminal it will become warm to the touch. To correct: remove the terminal, clean, replace, and tighten securely. If terminal cannot be tightened, insert a wood or metal wedge between the terminal and terminal post and tighten as much as possible. (See Figure 2.)

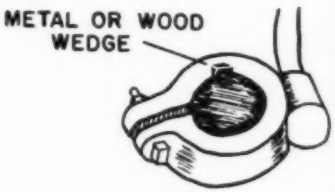

Figure 2. If a battery terminal cannot be tightened, insert a wood or metal wedge between the terminal and terminal post and tighten as much as possible.

g. *Broken or cracked oil and fuel lines* may be repaired with tape and secured with a tight wrapping of closely wound iron wire found in vehicle spare parts kit.

h. *Worn or lost rotor springs* may be temporarily replaced with a piece of wire attached to the rotor with friction tape. (See Figure 3.) With a little ingenuity the driver may even carve a distributor rotor out of wood.

Many of the roadside repairs listed will, when used to instruct a small group, bring to the mind of each soldier some expedient he has used in the past. However, impress on your drivers that they are authorized to go beyond their scope of maintenance only in cases of emergency.

The ability of a motor vehicle to negotiate difficult terrain depends upon its power, momentum, traction, and flotation. Choosing a practical expedient to meet most road difficulties is simplified by an appreciation of the following related factors:

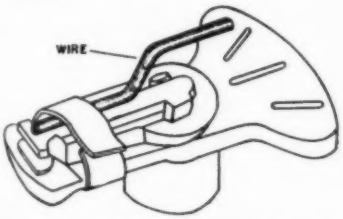

Figure 3. Worn or lost rotor springs may be replaced temporarily with a piece of wire attached to the rotor with friction tape.

Power in any gasoline propelled vehicle depends primarily upon maintaining sufficient engine speed. A shift to a lower gear allows the application of more power, but with a loss of forward momentum.

Momentum is the energy stored up by the weight of the vehicle in motion. It increases with the speed of the vehicle.

Traction is the ability of the wheels or tracks of a vehicle to adhere to the road.

Flotation is the ability of a wheel or track to ride the ground surface. Flotation increases with the area of ground contact afforded.

A driver must know the equipment available to regain any of the above factors when they are lost and immobilize a vehicle.

A knowledge of how to use the winch on a vehicle; how to construct an "A" frame, and how to apply the "skid" or "peg leg"; plus a lot of practical exercise in the field help to build the solid foundation needed for a driver to have confidence in himself and equipment when crossing difficult terrain. Movement over difficult terrain frequently creates the unexpected, so by all means train the driver to cope with every situation that may arise. A few of the field expedients that may be used are:

Traction Devices: Antiskid chains provide the most satisfactory means of increasing the traction of wheeled vehicles. Strap-on emergency chains may be carried in vehicles operating alone to provide a quick means of increasing traction in case the vehicle stalls on a muddy road. In an emergency, makeshifts such as short pieces of rope or web belts may be used for the same purpose.

Wheel Mats: Flat mats improvised by braiding together strands of rope, or pieces of heavy canvas, in sizes of about 3 by 6 feet, with ropes attached to the four corners, are useful for placing under the wheels when the going is soft. When a vehicle is stalled with wheels slipping, wheel mats may be used by attaching them to the wheels at one end, or they may be laid down in front of the wheels and the end away from the wheels staked down. To increase traction over a soft or slippery spot, one or several of these mats may be tied end to end. They may be staked down, held by hand, or tied to trees or rocks, by long ropes, or they may be maneuvered ahead of the wheels. Sandbags or, in an emergency, blankets and like articles may be used for the same purpose.

"A" frame: (See Figure 4) —This is an expedient that combines both a lift and a tow. It is easily constructed with two poles approxi-

Figure 4. An "A" frame combines a lift and a tow to move vehicles out of a ditch, a hole, or deep mire.

mately 12 feet long and two chains or cables. Dig holes as supports for the foot of the frame, and use a cross chain or plank to prevent the poles from spreading. Take care to place the "A" frame far enough away from the towed vehicle so that, when it is lifted over, the feet of the legs will not damage the front of the vehicle. This simple device is useful when a wrecking hoist attachment is not available to lift a vehicle out of and over a ditch or hole, or when a vehicle is completely mired. Power may supplied by the vehicle being lifted or by another vehicle with a winch.

A lost or damaged rear wheel on a 4 x 4 vehicle may be replaced by an expedient known as the "skid" or "peg leg." (See Figure 5.) A green log, approximately 8 feet long and 5 to 8 inches in diameter, is placed under the rear axle and over the cross member of the frame in such a way that the vehicle can be moved by using front wheel drive. The distance to be moved and type of terrain will dictate the number of peg legs that will be needed.

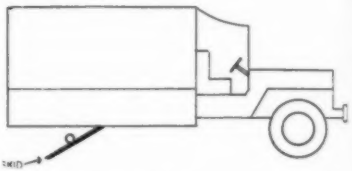

Figure 5. A lost or damaged rear wheel on a 4 x 4 vehicle may be replaced by a "skid" or "peg leg."

The different types of field expedients that have been mentioned here are only a few of those that an ingenious, hard-working driver can be taught. Their number is limited only by the imagination of the driver and materials available. Instill in your drivers the idea that no transportation difficulty is insurmountable. More often than not, confident, well-trained drivers will prove that fact by keeping vehicles moving under almost inconceivably difficult conditions.

Meet the Authors

Major General William K. Harrison, author of "Some Offensive Techniques," graduated from the Military Academy in 1917. His service includes several assignments to cavalry posts, as an instructor at West Point and the Command and General Staff College, and in 1946 as Commandant of The Mountain and Winter Warfare School. During World War II he was Assistant Division Commander of the 30th Division. He has recently terminated an assignment as Commanding General of Fort Dix, New Jersey, to become Deputy Commanding General, Eighth Army.

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Major Edgar N. Millington, the author of the Finance Department "short course" in this issue, graduated from the Military Academy in 1944. First assigned to the 16th Armored Division, he remained with this organization until the capture of Pilsen at the end of the war. Post war service included tours with the 79th and 1st Divisions in Germany; Advanced Course Student at The Infantry School; and, for the past two years, instructor at The School.

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The Infantry School's authority on replacements, Lt Col Robert J. Daniels, graduated from Infantry OCS Class No. 5, early in World War II. He served with the 77th Division in the States and overseas; participated in the invasion of Leyte; and in late 1944 became Assistant G1 and later G1 of the 24th Division. A 1949 graduate of The Infantry School Advanced Course, he has been a member of The School's Staff and Faculty for the last two years.

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Captain Arthur W. Wilson, author of our article on the 4.2-inch mortar emplacement, commanded Heavy Mortar Company, 31st Infantry Regiment, 7th Division, at the time of writing. His emplacement has won the approval of division, corps, and army commanders in Korea.

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Lieutenant Thomas D. Kerr, author of "Automotive Field Expedients," received his commission from the Infantry OCS at Fort Benning in 1942. Serving in the States with the 99th Infantry Division until 1944, he joined the 237th Engineer (Combat) Battalion and participated in the Normandy landing. Lieutenant Kerr stayed with the 237th, assigned to VII Corps, until the fighting stopped on the Elbe River. Recalled to active duty in October 1950, he is now with

the Automotive Department of The School.

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Lt Col Leonard M. McNutt joined the 36th Texas National Guard Division in 1930 and was called to active duty with the division in 1940. In 1942 he was transferred to the Military Intelligence Training Center at Camp Ritchie, Maryland. Transferred in 1945 to the Historical Section of the Eighth Army, Colonel McNutt served both in the Philippines and Japan until 1948 when he was assigned to The Infantry School.

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Master Sergeant Wallace C. Thornell is an old hand at communication. Since he entered the Regular Army in 1936, he has served 10 years with the Communication Department of The Infantry School. His tours here have been interrupted by overseas service with the 28th Division during World War II and a 1947-48 tour with the 2d Infantry Division at Fort Lewis, Washington.

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Captain Phil R. Garn recently finished three and one-half years with the 2d Division. He spent half of this time as a 75-mm rifle platoon leader. He led this platoon and later the Heavy Weapons Company of the 2d Battalion, 23d Infantry Regiment, for almost a year in Korea. Captain Garn was commissioned in the FA in 1945, serving with division artillery units of the Americal and 1st Cavalry Divisions in Japan after World War II. He is now attending the Advanced Infantry Officer Course at Fort Benning.

Lieutenant John O. Potts joins the ranks of QUARTERLY writers following a nine-month tour in Korea. He collected his information on our Infantry weapons while serving as a rifle platoon leader and rifle company commander with the 7th Cavalry Regiment, 1st Cavalry Division. Lieutenant Potts is now stationed with the Office of the PMS&T for Oakland Public Schools in California.

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Lieutenant Harold L. Wheeler, who writes The School's comments on Lieutenant Potts' article, received his commission from the Leadership and Battle Training School in Italy in 1945. His service in Europe included a tour with the 442d RCT of the 88th Division. Lieutenant Wheeler served with the 21st Infantry Regiment, 24th Division in Korea in 1950 and is now with The Infantry School's Weapons Department.

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Captain Bickford E. Sawyer, Jr., contributes the account of his rifle company during one of its many weeks of action in Korea. A 1945 West Point graduate, Captain Sawyer was assigned to the 23d Regiment of the 2d Division in 1948 and remained with that regiment until his return from Korea in June 1951. In Korea he was Battalion S2, 81-mm platoon leader, heavy weapons company executive, and ended his Korean duty by leading Company E for four months.

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CWO Herbert J. Uschold joined the RA as an enlisted man in 1935. Commissioned a 2d Lieutenant at Fort Benning during World War II, he joined the 63d Division as a

platoon leader at the Rhine River. Appointed WOJG in the Regular Army in 1948, CWO Uschold attended the Associate Basic Course at Fort Benning in 1949, and since that time has been with the Weapons Department of The Infantry School.

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The author of "Energa: Tank Grenade," Captain William S. Smith, was commissioned in 1944 and served in France, Germany, and Austria as a rifle platoon leader in the 65th Division. Since 1949 he has been an instructor in the Tactical and Weapons Department of The School. He is now enrolled in the Advanced Infantry Officers Course.

"The trained American possesses qualities that are almost unique. Because of his initiative and resourcefulness, his adaptability to change and his readiness to resort to expedient, he becomes, when he has attained a proficiency in all the normal techniques of battle, a most formidable soldier."

General of the Army Dwight D. Eisenhower

LETTERS

I have just read Major Robert G. Kimball's article on "Rifle Company as Support of an Advance Guard." This article is interesting in one respect, that the tactics used are elementary and have proven disastrous by the standards of the Korean War. The author sticks strictly by the "book."

Using vehicles in the advance is the quickest and surest way to end a military career that I know of. The following is a list of things we have learned to carry out when in the advance.

1. The use of roads by advanced Infantry units might be advisable in some situations, but the majority of the time I would say "No." Roads are usually zeroed in by enemy artillery and mortars and are sure to be heavily mined.

2. Motor vehicles such as trucks, jeeps, etc., do not have a place with advanced Infantry units. The mere thought of vehicles among advancing Infantry is enough to demoralize the best of trained soldiers because to the enemy they spell rank and authority and draw a great volume of artillery and mortar fire.

3. The high ground on either side of a road should be secured by companies from the main body. These companies should be abreast of the point which is on the low ground adjacent to the road and they should be tied in with units on the right and left flank.

4. The battalion which has the advance guard should be relieved every five miles, otherwise if no resistance is encountered they will become overconfident and lax.

5. All heavy organizational gear such as field desks, galleys, stores, and excess ammunition should be left with the rear echelon. Troops need only the bare essentials to fight with. Hot food should not be considered until the organization's phase of the battle is completed. Therefore there is no need for trucks to be on the road until the area has been secured.

6. Infantry company commanders should not worry about the roads being mined, the engineers are capable of coping with the problem.

7. Learn to appreciate the terrain that you are to fight over; take advantage of concealment and cover; avoid easy routes of approach such as roads, draws, and stream beds. They will be covered by enemy fire.

8. Learn all that's possible about the tactics of the enemy; put yourself in the enemy commander's shoes. How would you stop your advance? After you have evaluated the facts, act accordingly.

9. Never bivouac in a town or city. There are too many people in these places who are not on your side. Instead, send patrols

into towns with CIC agents to look around. Keep civilians out of your bivouac areas at all costs.

10. Depend more on your NCO's, some of them have had wide experience with all types of situations.

11. Company and battalion command groups should be afoot. It's good for the morale and, any way, most of them need the exercise.

12. Enemy artillery, self-propelled AT Guns, and emplacements can be handled very nicely by close air support and counter battery artillery. Unless Infantrymen are close enough to use shaped charges and rockets, they have no business attacking mechanized weapons. When the enemy AT crews realize that there are no targets to shoot at they will limber up and move to the rear in fear of being cut off. Tanks are good to cover advancing troops, but should only be forward when the presence of enemy tanks are certain or heavy emplacements hold up the advance.

13. Remember that training manuals are a guide and can be improved. There are many ways to fight a war. The situation depends on the terrain, or does it?

H. W. Ballard
Technical Sergeant, USMC
H&S Company, 7th Marines
1st Marine Division, FMF

We are pleased to receive comments from our brothers-in-arms of the Marine Corps. This is true whether correspondents agree with our views or, as in your case, express some contrary opinions.

Actually we don't believe there is a wide variance between your ideas and those presented in Major Kimball's advance guard article. Rather, it seems to us that you and the major are considering two different situations.

We agree with you that the application of tactical principles must always depend on the terrain and the situation. We grant, most readily, that the terrain in Korea differs widely from that found in the Gettysburg, Pennsylvania, area, the locale of Major Kimball's problem. In addition, this problem deals with an *approach march*—a march made prior to establishing contact with the enemy.

The doctrine presented by Major Kimball is elementary since it must cover all situations. Quoting from a current Infantry field manual, " . . . each combat situation can be solved best by a common sense application of the principles rather than by a blind application of the rules."

We are in complete agreement with the remainder of your observations and consider them a valuable addition to our publication coming, as they do, from a combat-experienced foot soldier.

During my year as an Infantry company commander in Korea our company learned a lot of things useful to Infantry small units. But our personnel felt that the most important thing we had learned was to hold a critique for the entire company after every operation. We felt that no combat action was complete without these critiques which we called Combat Lessons Learned.

We found that the men of the company entered enthusiastically into these discussions, which were especially helpful to our replacements since the critiques gave

them an opportunity to learn the score before actually experiencing combat.

Does The Infantry School teach such a procedure?

Yours,

Capt Bickford E. Sawyer, Jr., Infantry

The Infantry School has been teaching for a long time the value of critiques following any exercise or training period but has not specifically applied it to post combat operations. However, there is nothing in existing policy which precludes the conduct of critiques following combat action, when such activity is possible.

Such critiques were held in many units in World War II with varying degrees of sucess.

Lt Col John R. Richmond's article, "Tighten Your Landing Pattern" in the October QUARTERLY *presented a most unusual solution to a continuing problem. Unfortunately, it is based apparently on an academic study as obviously the principles involved can be practiced only on a drawing board and never on a drop zone.*

With nine aircraft in flight, two sticks jumping from each aircraft, it is unrealistic to assume that the 18 individual jumpmasters will all begin to execute at the same moment. Current technique is for the pilot of the lead aircraft of the element to simultaneously give the green light exit signal and flash a light from his astrodome to the other aircraft of his element, indicating that the desired exit time has arrived. Human nature being what it is, the other eight pilots, co-pilots and navigators involved, all have a different reaction time and the jump signal will be flashed in the other aircraft with varying speeds, depending upon the reactions of the various individuals. Thus, from the outset it is impossible to put down a multi-plane formation of parachutists in the pattern advocated by Col Richmond.

The problem is further complicated by the varying speeds in which the individuals in each of the 18 sticks of the 9 aircraft involved exit from the aircraft. A delay in getting out a bundle, or a man who slips or hesitates in the aircraft will further disperse the landing pattern of the stick concerned. Thus, with Col Richmond's loading technique, the squad leader arriving on the ground in actual practice would say to himself, "I know that the rest of my squad jumped in sticks flying to my left, but are they behind me or ahead of me." With the present system the squad leader says to himself, "I know my position in the stick. The aircraft went that way; therefore, the rest of my squad is down there."

The third factor which argues against Col Richmond's procedure is the varying rate of drift of individuals. No amount of training can teach any sized unit's personnel to slip their parachutes in such a manner that the heavy and the light men will descend at the same rate of drift.

Lt Col, ABN

Lt Col Richmond's reply follows:

1. There is no intent to have all planes of a nine-ship element give the green light at the same moment

as this would immediately introduce an error at least equal to the length of the element. The author believes that with training, the pilots other than the element leader can jump their sticks at a given point so as to have the first man in each stick in a general line.

2. The comment "from the outset it is impossible to put down a multi-plane formation in the pattern advocated" is without foundation. *It has been done* at reinforced rifle company level in a test witnessed by the author. Though such a test is certainly not conclusive it was generally conceded at that time (1949 — 11th Airborne Division) that the idea had possibilities.

3. Within a single serial most sticks of a well-trained unit will be about the same length though it is true that the men will not land in a geometrically perfect formation. Are the various visual and electronic assembly aids to be denied simply because this is a new method?

4. The rate of drift is certainly a consideration—a consideration of about fifty yards.

5. It is interesting to note that all of the faults of the proposed method which are pointed out are also faults of the present method.

6. Finally — the squad leader *can* say, "At least I know my squad is in *this* county."

"The ground force soldier who is able . . . to live, fight, and maintain himself for weeks and months in any kind of weather, is more than ever the keystone of the military effort."

Field Marshal Montgomery